Roads Analysis Report
Beegum Sixth-Field Planning Watersheds

Shasta Trinity National Forest
South Fork Management Unit

December 2010

(Road 29N45 failed inboard ditch road erosion)

Approved by

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Jerry VanHees **Date**
Acting District Ranger

Executive Summary

With an aging road system based on high maintenance designs (insloped inboard ditch roads) the forest service is challenged to keep up on an aging road system in need of extensive maintenance. With limited road maintenance funding new retroactive road designs must be implemented to allow roads to withstand storms with lower maintenance requirements. The Beegum RAP addresses these concerns and focuses on reducing sediments with extensive road improvements of storm-proofing or decommissioning of roads. Also with the recent Record of Decision on prohibition of cross-country travel, all travel routes identified as user created routes that were not brought in through Travel Management Subpart B[1] will be recommended for candidate decommissioning or adoption depending on resource risks and need.

There are 60 miles of classified maintenance level 3 & 4 roads, 94 miles of classified maintenance level 2 roads along with 18 miles of classified maintenance level 1 roads, and 17 miles of unclassified roads within the Beegum Creek Fifth-Field Planning Watershed for a total of 190 miles of roads. Also there are 14 miles of cross-country routes. This Roads Analysis Process recommends that approximately 29 miles of level 1 & 2, and unclassified roads, and 14 miles of cross-country routes be evaluated through the NEPA (National Environmental Policy Act) process for closure or decommissioning. Downgrade 13 miles of level 2 roads to maintenance level 1. Improve 93 miles of level 1 & 2 roads by stormproofing spots or short segments. Retain as is 51 miles of level 1 and 2 roads. Upgrade 6 miles from maintenance level 2 to maintenance level 3.

Roads Analysis Process

The Roads Analysis Process (RAP) was developed by the US Forest Service to analyze the extensive road system on the national forests in a comprehensive manner, and to formulate recommendations on how to best manage the road system in the future for a wide variety of uses. The Shasta-Trinity National Forest developed a Forest Roads Analysis Report in July 2002 addressing the road system for the entire Forest (level 3 and 4 roads only), and the Beegum Roads Analysis supplements information presented in the Forest-wide RAP by looking at level 1, 2, U-routes, and user created cross-country travel routes not brought in through Travel Management Subpart B.

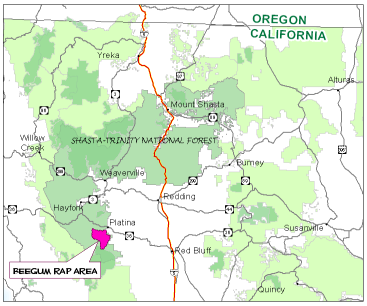
The Beegum RAP provides recommendations for activities that may be incorporated in future vegetation management, watershed restoration and road related proposed actions. A number of the larger roads (level 3 and 4) in this analysis area were previously analyzed in the Forest-wide RAP and therefore, the Beegum RAP only makes general recommendations on level 3 and 4 routes (to update the Forest RAP of 2002) and focuses primarily on level 2, level 1, unclassified roads and prohibited user created cross-country routes (PM, RM, and SFMU) for this analysis.

[1] Travel Management Subpart B Record of Decision, March 2010.

Scope

The Beegum RAP covers all areas within the Beegum Creek Sixth-Field Planning Watersheds located in the lower portion of the Shasta-Trinity National Forest (Figure 1).

Figure 1 – Beegum RAP Analysis Area



This analysis covers all level 2, level 1 roads, (existing Forest System roads), makes general recommendations on several level 3 and 4 roads, unclassified, and user created cross-country routes, with the following exceptions:

- Roads that are privately owned and lie entirely within private property.
- Roads that are maintained through agreements with Trinity County (county roads).

Unclassified roads were defined using the following criteria:

- All travel-ways showing signs of use within the last year.
- Roads that will be used for management activities in the next 3-5 years.
- Travel-ways causing resource damage.
- Road features that are shown on recent USGS and/or USFS maps, but are not in the USFS roads system.

Objectives

The objectives of this RAP are to:

1. Determine what has been accomplished through Beegum fire recovery projects, the Beegum Legacy contract, and what roads are in need of further repairs.
2. Determine future needs for and uses of level 2 and level 1 roads, and unclassified roads within the watershed.
3. Determine immediate, short term (3-5 year) and long-term (beyond 5 year) recommendations for roads based on administrative and public use. This may include decommissioning, closure, improving, upgrading, or reconstruction.
4. Recommend proposed treatment by road segment for the ensuing planning period (20 years).
5. Identify roads commonly known as “jeep” roads (PM, RM, and SFMU routes) and trails within the watershed which would be recommended for candidate decommissioning or adoption depending on risk vs. need due to recent Travel Management Record of Decision for prohibited cross-country travel.
6. Identify roads that provide access to mining claims, recreational use areas such as Beegum Creek, and private parcels. Evaluate if closure or maintenance is desired for each road, via the NEPA process.

Existing Road System

The Beegum RAP assessment area is located on the South Fork Management Unit of the Shasta-Trinity National Forest. The watershed is located in T.29N., R.11W., sections 24 through 26 and 35 through 36; T.28N., R.11W., sections 1, 2, and 11 through 13; T.28N., R.10W., sections 1 through 27 and 34 through 36; T.27N., R.10W., sections 1 through 3 and 10 through 15; and T.29N., R.9W., sections 29 through 31; T28N, R9W sections 5 through 9, 17 through 21, and 29 through 32; T27N, R9W sections 5 through 7, M.D.M. Watercourses within the assessment area all drain to the main stem Beegum Creek which flows into Middle Cottonwood Creek.

The Beegum RAP assessment area is located within Management Area 22 - Beegum, of the Shasta-Trinity Land and Resource Management Plan (LRMP).[1] About 40% of the area is Adaptive Management Area, 30% is Administratively Withdrawn Area, 20% is Matrix and 10% is Late Successional Reserves. Current management and desired future condition in this management area is driven by several factors including; Wildlife Habitat, Fisheries Resources, Water Quality (including domestic supplies), several forms of Roaded Recreation, Heritage Resources, and production of Commercial Wood Products.

Sub-watersheds (i.e. HUC 7 and smaller) within the area are lightly to moderately roaded, and all 7th-field sub-watersheds within the analysis area are rated as Watershed Condition Class I. This indicates that most of the individual watercourses within the sub-watersheds and the Beegum Fifth-Field watershed are in good to excellent condition and show only limited impacts based on roads and other management activities. There are however, some localized areas within the watershed that show higher road densities (these are mainly near the headwaters of Beegum Creek). Casual public use of this watershed includes hunting, fishing, OHV use, wood gathering, and camping. Resource use in this watershed includes timber production, deer winter range management, fuels reduction, fuel-break construction and maintenance, and mining.

The analysis area can be accessed via State Highway 36 and from the Hayfork Creek Watershed via several forest roads. The main access points into the Beegum area from Highway 36 are Forest Service Roads 35, 41, and 45.

Interdisciplinary team members and participants

The following interdisciplinary (ID) team was assigned to this analysis by the District Ranger. The team addressed the issues assigned by the District Ranger and identified data needs.

Member	Title	Role for Roads Analysis
Jerry VanHees	Acting District Ranger	Line Officer
Brad Rust	Forest Soil Scientist	Team Leader
Eric Wiseman	Fisheries Biologist	Team Member
Mark Arnold	Archaeologist	Team Member
Susan Erwin	Botanist	Team Member
Christine Mai	Forest Hydrologist	Team Member
Fred Levitan	Westside Hydrologist	Team Member
Annetta Mankins	Hydrologic Technician	Team Member
Mark Goldsmith	Wildlife Biologist	Team Member
Karol McGuire	GIS - INFRA	Team Member
Keli McElroy	Silviculturist	Team Member
Jim Gonzalez	Fuels Officer	Team Member
Lori Jackson	Road Manager	Team Member

[1] Shasta-Trinity Land and Resource Management Plan, 1995.

Issue Summaries

The District Ranger identified a number of important considerations to be addressed in this analysis and along with the team leader, designated the appropriate RAP questions. Once assigned, questions were assigned to the appropriate disciplines. Please refer to the Roads Analysis Handbook (March 2002) for a description of the questions to be addressed.

Discipline	**RAP Questions**
Hydrology/ Fisheries Biology	Aquatic, Riparian Zone, & Water Quality questions 1, 2, 3, 4, 7, 9, 11,13
Wildlife Biology/ Botany	Terrestrial Wildlife questions 1 and 4
Fuels	Protection questions 1, 2, 3
Team Leader	Economics 1 and Protection 4
Transportation	General Public Transportation questions 1, 2, 3, and 4
Silviculture	Timber management questions 2 and 3; Special forest products , Special-use permits question 1
Recreation	Road-related Recreation questions 2 and 4
Range	Range management allotments
Archaeology	Social Issues questions 3 and 4; Passive-use Value questions 2 and 3

In addition the RAP team members identified the following data needs, and collected the information necessary for completion of this analysis.

- Classification of all roads by type and maintenance level.
- Existing road logs.
- Existing easements, private access, right-of ways.
- Identification of all unclassified roads.
- Identification of hydrology, geology, and soil areas of concern.
- Identification of silvicultural and timber management needs for roaded access.
- Identification of fire suppression and fuels management road access needs.
- GIS map of existing road network.
- Identification of critical, unique or sensitive wildlife habitats.
- Identification of recreational uses and cultural sites within the area.
- Identification of wildlife habitat management needs impacted by or facilitated by existing roads.
- Locations of Threatened, Endangered or Sensitive species and habitats.
- Identification of Forest Level Roads Analysis routes for main forest roads and trails.
- Identification of Travel Route-subpart B routes brought into forest roads and trails system.
- Identification of Westside Restoration routes and Beegum sediment source inventory.
- Identification of Beegum legacy work done in 2009 and recommendations of forest RAP.
- Identify areas still needing work that was identified in the sediment source inventory but not done with the Beegum legacy work done in 2009.
- Identification of future user-created cross-country roads that are now prohibited and need to be decommissioned or brought into the system depending on risks vs. need.
- Valid special use permits and mining claims.

Existing Information & Completed Work

Shasta – Trinity National Forest Roads Analysis Report completed in 2002 focusing on level 3 and 4 roads including the Beegum watershed routes (28N10, 28N36, 28N64, 29N35, 29N45).

Post Creek 28N36 – 1000 CY road aggregate surfacing to reduce erosion completed in 2006.

Beegum Burn Area Emergency Rehabilitation 2008 – 20 rolling-dips, 140 CY riprap placement, 930 LF berm removal, 175 CY aggregate base surfacing, 450 LF ditch cleaning, 300 LF out-sloping, and gate barrier installed on 29N06.

Beegum Sediment Source Inventory (SSI) 2009 – 300 miles inventoried for erosion and sediment sources.

Beegum Storm Damage Emergency Response July 2009 – fill from failed crossings removed, rolling-dips reconstructed, culverts cleaned, and berm removal on 29N06.

Beegum Fire Restoration Project November 2009 – 24 rolling-dips installed, 462 CY riprap placed, 600 CY or aggregate road base, 12 CMP and OSD removal and replaced with 280 LF of 24" CMP, enlarged 6 catch basins, cleaned stream channels and channel excavation along with reconstruction of stream channels with critical-dips and low-water crossings on 29N06.

Beegum Legacy Storm-proofing Project 2009 – 84 rolling-dips with riprap dissipaters, 2,400 LF berm removal, 15,000 LF ditch cleaning, 21 critical dips constructed, 47 OSD removed, 150 CY riprap placed for embankment protection, 40 culverts cleaned, installed one 72" CMP culvert upgrading from 18" CMP, and 63 miles of road storm-proofing on 28N10, 28N10E, 28N15, 28N36, 28N47, 28N64, and 29N39.

Road Definitions

The definitions used by the team for the purposes of this analysis are listed below.

Classified Road: A road maintained for long-term vehicle access, including FS, county, private, and other roads wholly or partially within or adjacent to FS lands. These roads are maintained and tracked as part of the FS transportation system.

Closure / Closed Road: A road that is on the FS transportation system but is effectively closed to vehicle use. The period of closure must exceed 1 year. This is used for all level 1 roads. Closure may include gating, tank trapping and/or berm construction, armoring stream-road crossings, removing culverts, water-barring road surfaces, and "ripping" landings/road surfaces, as well as other measures to meet site-specific needs. The goal is to effectively close the road to public use while controlling surface runoff, erosion, and mass failure, and leaving the road available for future use.

Convert to Trail: Create a trail out of the existing road by pulling culverts and fill, out-sloping, and leaving an outside path.

Decommissioned Road: A road that has been taken off the FS transportation system after it was effectively closed. Decommissioning may include removing culverts, ripping road surfaces and/or tank trapping, as well as other measures to meet site-specific needs. The goal is to control surface runoff, erosion, and mass failure. Short-term decommission refers to roads that are ready for decommissioning in the near future pending NEPA analysis. Long-term decommission refers to roads that need determinations of current use for administrative purposes of mining, recreation, or private property access so long-term plans can be developed for the decommissioning of the road.

Natural Recapture: A system road that has not seen recent use (or is physically closed or blocked) and is becoming overgrown within the existing roadbed or an unclassified road that will be closed or blocked and vegetation will be allowed to overgrow the roadbed. These roads quickly become undriveable, but are available for future use and fire activities, if needed.

Road Maintenance/Retain: This work can include gating, brushing, culvert replacement, culvert upgrade (Q_{100} culvert pipes), grading, and rocking. These roads are inspected systematically for maintenance needs.

Road Reconstruction: Road improvements required due to an anticipated increase in traffic, service level or haul capacity. Activities may include culvert upgrades, out-slope grading, berm removal, rocking, paving, and draining.

Storm-proofing/Improve: Road storm-proofing improvements are designed to reduce road prism and fill erosion by creating rolling-dips to break up water flow and dissipate energy off-slope. At crossings various treatments of low-water crossings or critical-dips are used to improve crossings for large flow events. The purpose is to put a road in a more self-staining mode requiring less maintenance.

Temporary Road: A road that was authorized for construction by contract, permit or lease, or built for emergency operation. These roads are not part of the FS transportation system, and are not maintained for long-term use. These roads are required to be closed after their approved use according to requirements of road decommissioning or site-specific design mitigations.

Transportation System: The road system maintained by FS. This does not include unclassified, decommissioned, or temporary roads.

Transportation System Database (Oracle and GIS): The computer database maintained by FS containing information on roads, including unclassified and decommissioned roads (e.g., U-roads).

Level 2 and Level 1 Roads: Level 2 roads are maintained for high-clearance vehicles which can be open, closed seasonally, or closed to administrative use only (including special-use permits) where level 1 roads are closed annually. The period of closure must exceed 1 year.

Unclassified Road (U-road): A road on FS land that is not classified and not maintained. These are tracked as part of the FS transportation system database. These are abandoned and/or illegally developed roads, and are often used as OHV and/or jeep trails. Temporary roads that were not closed after approved use (e.g., temporary roads built during fire suppression activities) are included. These are often termed “ghost” roads.

Travel Route Identified Temporary Road (PM, RM, and SFMU routes): A road on FS land that is not classified and not maintained. These were tracked as part of the FS Travel Route database but lack data on what type of road they are and what condition they are in. Further investigation is necessary is needed to obtain information on what to do with these routes.

Prohibition of Cross-Country Travel: With the prohibition on cross-country travel by motor vehicles on the Shasta-Trinity National Forest the ROD decision to only allow motor vehicle travel by the public on NFTS roads, trails and in open OHV areas only.

Analysis process

Prior to convening a team to work on the analysis, the District Ranger and ID Team leader met to discuss the scope of the analysis, and to define the process for this watershed. During that meeting, the specific questions to be addressed, the team composition, and the objectives of the analysis were determined. Preliminary data needs for the analysis were also identified.

The team members were notified of their inclusion on the team and given a summary of their duties.

The existing GIS roads layer was known to be inadequate for a thorough analysis of the watershed. Field visits were made to the watershed and the existing roads layer checked for accuracy. Beegum sediment source inventory was used to identify problem areas in need or work. Beegum legacy work, BAER emergency work, and fire restoration work updated our existing information and was field checked to insure work was done and working properly. Several corrections were made to the existing roads layer, and numerous unmapped and unclassified roads were located. Unclassified roads were mapped with GPS. Unclassified roads were given designators to assist in preparation of the RAP, but these designators were not intended to be a definitive attribute of the road beyond this RAP. Analysis focused on the risk vs. the need or the use level of the road (see Table 1). By using the risk vs. need matrix, decisions were made as to what roads should be maintained, roads needing improvement, roads to change maintenance level, or ones to close or decommission. If a route had high risk and the need for the route is high then improve or storm-proof to reduce the risk while still keeping the route. If the route had low risk and high use then just retain but if it had high risk but low use then close or decommission.

Table 1: Risk vs. Need/Use Matrix

		NEED/USE	
		Low	High
RISK	Low	Close or maintain status quo	Status quo or maintain
	High	Decommission or close	Re-route and decommission; recondition or storm-proof; convert from high use to closed; level 2 with seasonal closures

Specialists completed their analysis work and answered the questions assigned to them based on existing data. In some instances, specialists visited specific roads to quantify the resource damage being caused by those roads. Level 2, 3 and 4 roads that have existing problems were noted like inboard-ditch failures, excessively large fills in unstable lands, and large landslides that are chronic maintenance issues are displayed in the Maps Section.

Typical problem encountered in field visits was old routes or landings located in unstable stream inner-gorges. Many spur routes are old logging extensions into these unstable inner-gorges which are identified as PM or RM routes. These routes will be brought forward for future candidate decommissioning or adoption depending on risk vs need due to the recent Travel Management Record of Decision on the prohibition on cross-country travel.

The team met and discussed the roads general concerns, opportunities were addressed, and included in a recommendations table for the watershed. This report presents the analysis done to date for this project.

Current Road Status (Table 2)

Current road status within the Beegum RAP area includes road length (miles), special use and/or right-of-way agreements, road maintenance level, closure type in INFRA (Forest Roads Database), closure type on the ground, and road surface type. Mileages include road segments that lie within the Beegum Sixth-Field Planning Watershed and ones that go in and out of the planning watershed (determined via GIS). INFRA closure refers to administrative designation of road closure, while the ground closure column refers to the current closure state of the road in the field.

Table 2. Current Road Status.						
ROAD ID	Length (MI)	Design of Road	Level	Closure Type (INFRA)	Closure Type (Ground)	Surface Type
27N12	3.1000	Outsloped	2	Open		nat - native material
27N48	1.4000	Outsloped	1	Annual	barrier/no good	aggregate or gravel
27N48A	0.4000	Outsloped	1	Annual	barrier/no good	aggregate or gravel
28N01		Outsloped	2	Open		nat - native material
28N02	2.0000	Outsloped	2	Open		nat - native material
28N05	6.9000	Outsloped	2	Open		nat - native material
28N05	8.9000	Outsloped	2	Open		nat - native material
28N06	0.3000	Outsloped	2	October to May	gate	nat - native material
28N07	2.5000	Outsloped	2	Open		nat - native material
28N07	2.9300	Outsloped	2	Open		nat - native material
28N08	1.8000	Outsloped	1	Annual	barrier/no good	nat - native material
28N09	2.8000	Outsloped	2	October to May		nat - native material
28N09A	1.1000	Outsloped	1	Annual	barrier/no good	nat - native material
28N09B	0.2000	Outsloped	1	Annual	barrier/no good	nat - native material
28N10	40.8000	Insloped	3	Open		aggregate or gravel
28N10A	0.9000	Outsloped	1	Annual	open	nat - native material
28N10C	0.3530	Outsloped	1	Annual	open	nat - native material
28N10E	1.3000	Outsloped	2	Open		aggregate or gravel
28N10F	0.4000	Outsloped	2	Open		nat - native material
28N10L	0.6500	Outsloped	2	Open		nat - native material
28N10M	0.4453	Outsloped	2	Open	open	nat - native material
28N10P	0.3000	Outsloped	1	Annual		nat - native material
28N10R	0.3000	Outsloped	1	Annual	barrier/ no good	nat - native material
28N13	5.6000	Outsloped	2	Open		nat - native material
28N14	2.5000	Outsloped	2	Open		nat - native material
28N14A	0.2000	Outsloped	2	Open		aggregate or gravel
28N14B	0.4000	Outsloped	2	Open		aggregate or gravel
28N14C	0.3780	Outsloped	2	Open		nat - native material
28N15	3.9000	Outsloped	2	Open		nat - native material
28N15A	0.8000	Outsloped	2	Open		aggregate or gravel
28N17	0.3000	Outsloped	2	Open		nat - native material
28N18	1.1000	Outsloped	2	Oct to May		aggregate or gravel
28N19	2.3000	Outsloped	2	Open		nat - native material
28N19C	0.5000	Outsloped	1	Open		nat - native material
28N29	1.6000	Outsloped	2	Open		aggregate or gravel
28N29A	0.2000	Outsloped	2	Open		nat - native material
28N32	2.8000	Outsloped	2	Oct to May		nat - native material
28N32A	0.4000	Outsloped	2	Oct to May		nat - native material
28N32B	0.9000	Outsloped	2	Oct to May		nat - native material
28N35	14.6000	Insloped	4	Open		bst - bituminous
28N35	0.8000	Outsloped	1	Open		bst - bituminous
28N35	15.1000	Insloped	3	Open		aggregate or gravel
28N35A	1.2000	Outsloped	2	Open		nat - native material
28N35C	0.9000	Outsloped	2	Open		nat - native material
28N35F	0.4000	Outsloped	1	Annual	barrier/no good	nat - native material
28N35G	0.3000	Outsloped	1	Annual		nat - native material
28N35J	0.8000	Outsloped	2	Open		nat - native material
28N35L	0.4000	Outsloped	1	Annual	open	nat - native material
28N36	5.8000	Outsloped	2	Open		aggregate or gravel
28N36A	0.1000	Outsloped	2	Open		nat - native material
28N36B	0.3000	Outsloped	1	Annual	barrier/no good	nat - native material
28N47	1.4000	Outsloped	2	Open		nat - native material
28N47A	0.5000	Outsloped	1	Annual	barrier/ no good	nat - native material

28N60	0.8000	Outsloped	2	Open		nat - native material
28N60	1.0000	Outsloped	2	Open		nat - native material
28N62	2.0000	Insloped	3	Open		aggregate or gravel
28N62A	0.2000	Outsloped	2	Open		nat - native material
28N64	3.6000	Insloped	3	Open		aggregate or gravel
28N64A	0.2000	Outsloped	2	Open		aggregate or gravel
28N64B	0.7000	Outsloped	2	Open		aggregate or gravel
28N64C	0.2000	Outsloped	1	Annual		nat - native material
28N64D	0.6000	Outsloped	2	Open		aggregate or gravel
28N67	0.4000	Outsloped	2	Open		nat - native material
28N68	2.8000	Outsloped	2	Open		nat - native material
28N68A	0.3000	Outsloped	2	Open		nat - native material
28N68B	0.6310	Outsloped	2	Open		nat - native material
28N74	0.7000	Outsloped	1	Annual	barrier/no good	aggregate or gravel
28N74A	0.3000	Outsloped	1	Annual	barrier	nat - native material
28N74B	0.2000	Outsloped	1	Annual	barrier	nat - native material
28N81	0.8000	Outsloped	1	Annual	barrier/no good	nat - native material
28N82	0.4000	Outsloped	1	Annual		nat - native material
28N84	0.8000	Outsloped	2	Open		nat - native material
28N92	0.5000	Outsloped	1	Annual	barrier/no good	nat - native material
28N92	1.4000	Outsloped	2	Open		nat - native material
28N92A	0.7000	Outsloped	2	Open		nat - native material
29N06	6.6000	Outsloped	2	Open		nat - native material
29N22	0.3000	Outsloped	2	Oct to May	gate	aggregate or gravel
29N22	5.9000	Outsloped	2	Oct to May		aggregate or gravel
29N22B	1.1000	Outsloped	2	Oct to May		aggregate or gravel
29N22C	4.2760	Outsloped	2	Open		nat - native material
29N22D	3.6960	Outsloped	2	Open		nat - native material
29N28	11.2000	Insloped	3	Open		aggregate or gravel
29N28D	1.5452	Outsloped	2	Open		nat - native material
29N39	3.2000	Outsloped	2	Open		nat - native material
29N39A	0.4000	Outsloped	1	Annual	open	nat - native material
29N40	1.2000	Outsloped	1	Annual	barrier/no good	nat - native material
29N40A	1.8000	Outsloped	1	Annual	barrier	nat - native material
29N40B	0.4000	Outsloped	1	Annual	barrier	nat - native material
29N44	0.8000	Outsloped	3	Open		nat - native material
29N45	17.9000	Insloped	3	Open		aggregate or gravel
29N45A	1.8000	Outsloped	2	Open		nat - native material
29N45B	1.5000	Outsloped	2	Open		nat - native material
29N45F	3.0980	Outsloped	2	Open		nat - native material
29N45R	1.1000	Outsloped	2	Open	barrier	nat - native material
29N84	1.2000	Outsloped	1	Annual		nat - native material
29N84A	0.3000	Outsloped	1	Annual	open	nat - native material
pm1015	0.0810	Variable	0	N/A	open	nat - native material
pm1016	0.0657	Variable	0	N/A	open	nat - native material
rm028	0.1097	Variable	0	N/A	open	nat - native material
rm029	0.0563	Variable	0	N/A	open	nat - native material
rm030	0.1485	Variable	0	N/A	open	nat - native material
rm032	0.0596	Variable	0	N/A	open	nat - native material
rm048	0.3113	Variable	0	N/A	open	nat - native material
rm049	0.0804	Variable	0	N/A	open	nat - native material
rm051	0.0975	Variable	0	N/A	open	nat - native material
rm072	0.0423	Variable	0	N/A	open	nat - native material
rm073	0.1341	Variable	0	N/A	open	nat - native material
rm090	0.0658	Variable	0	N/A	open	nat - native material
rm094	0.1320	Variable	0	N/A	open	nat - native material

rm1000	0.0577	Variable	0	N/A	open	nat - native material
rm1021	0.0459	Variable	0	N/A	open	nat - native material
rm1026	0.1535	Variable	0	N/A	open	nat - native material
rm1026b	0.0269	Variable	0	N/A	open	nat - native material
rm1028	0.0485	Variable	0	N/A	open	nat - native material
rm1030	0.0696	Variable	0	N/A	open	nat - native material
rm1032	0.0717	Variable	0	N/A	open	nat - native material
rm1035	0.0651	Variable	0	N/A	open	nat - native material
rm1038	0.0679	Variable	0	N/A	open	nat - native material
rm1050	0.0573	Variable	0	N/A	open	nat - native material
rm1051	0.7041	Variable	0	N/A	open	nat - native material
rm1053	0.0426	Variable	0	N/A	open	nat - native material
rm1054	0.0883	Variable	0	N/A	open	nat - native material
rm1055	0.2314	Variable	0	N/A	open	nat - native material
rm1057	0.1759	Variable	0	N/A	open	nat - native material
rm1058	0.3530	Variable	0	N/A	open	nat - native material
rm1060	0.2000	Variable	0	N/A	open	nat - native material
rm1061	0.1972	Variable	0	N/A	open	nat - native material
rm1101	0.4724	Variable	0	N/A	open	nat - native material
rm1102	0.1133	Variable	0	N/A	open	nat - native material
rm1103	0.1275	Variable	0	N/A	open	nat - native material
rm1108	0.2213	Variable	0	N/A	open	nat - native material
rm1110	0.0816	Variable	0	N/A	open	nat - native material
rm1111	0.1889	Variable	0	N/A	open	nat - native material
rm1112	0.1125	Variable	0	N/A	open	nat - native material
rm1113	0.1371	Variable	0	N/A	open	nat - native material
rm1114	0.1112	Variable	0	N/A	open	nat - native material
rm1115	0.1110	Variable	0	N/A	open	nat - native material
rm1120	0.0401	Variable	0	N/A	open	nat - native material
rm1121	0.0704	Variable	0	N/A	open	nat - native material
rm1124	0.0424	Variable	0	N/A	open	nat - native material
rm1125	0.1812	Variable	0	N/A	open	nat - native material
rm1126	0.1082	Variable	0	N/A	open	nat - native material
rm1133	0.0393	Variable	0	N/A	open	nat - native material
rm1135	0.1590	Variable	0	N/A	open	nat - native material
rm1137	0.0468	Variable	0	N/A	open	nat - native material
rm1138	0.0569	Variable	0	N/A	open	nat - native material
rm1152	0.0439	Variable	0	N/A	open	nat - native material
rm1154	0.0644	Variable	0	N/A	open	nat - native material
rm1155	0.2822	Variable	0	N/A	open	nat - native material
rm1156	0.2077	Variable	0	N/A	open	nat - native material
rm1158	0.0712	Variable	0	N/A	open	nat - native material
rm1159	0.0572	Variable	0	N/A	open	nat - native material
rm1175	0.2042	Variable	0	N/A	open	nat - native material
rm1219	0.0969	Variable	0	N/A	open	nat - native material
rm1228	0.2265	Variable	0	N/A	open	nat - native material
rm1229	0.0745	Variable	0	N/A	open	nat - native material
rm133	0.0455	Variable	0	N/A	open	nat - native material
rm1680	0.0551	Variable	0	N/A	open	nat - native material
rm1681	0.0392	Variable	0	N/A	open	nat - native material
rm1682	0.3907	Variable	0	N/A	open	nat - native material
rm803	0.0957	Variable	0	N/A	open	nat - native material
rm805	0.0349	Variable	0	N/A	open	nat - native material
rm806	0.0638	Variable	0	N/A	open	nat - native material
rm809	0.0370	Variable	0	N/A	open	nat - native material
rm810	0.4077	Variable	0	N/A	open	nat - native material

rm811	0.1066	Variable	0	N/A	open	nat - native material
rm812	0.0551	Variable	0	N/A	open	nat - native material
rm813	0.0515	Variable	0	N/A	open	nat - native material
rm815	0.0609	Variable	0	N/A	open	nat - native material
rm816	0.1092	Variable	0	N/A	open	nat - native material
rm840	0.0959	Variable	0	N/A	open	nat - native material
rm841	0.0496	Variable	0	N/A	open	nat - native material
rm842	0.0994	Variable	0	N/A	open	nat - native material
rm849	1.0253	Variable	0	N/A	open	nat - native material
rm850	0.0304	Variable	0	N/A	open	nat - native material
rm853	0.0701	Variable	0	N/A	open	nat - native material
rm866	0.1885	Variable	0	N/A	open	nat - native material
rm867	0.0606	Variable	0	N/A	open	nat - native material
rm871	0.0428	Variable	0	N/A	open	nat - native material
rm874	0.1238	Variable	0	N/A	open	nat - native material
rm876	0.0843	Variable	0	N/A	open	nat - native material
rm892	0.0619	Variable	0	N/A	open	nat - native material
rm893	0.1531	Variable	0	N/A	open	nat - native material
rm894	0.0655	Variable	0	N/A	open	nat - native material
rm895	0.1227	Variable	0	N/A	open	nat - native material
rm896	0.2019	Variable	0	N/A	open	nat - native material
rm898	0.2865	Variable	0	N/A	open	nat - native material
rm899	0.1326	Variable	0	N/A	open	nat - native material
rm901	0.0664	Variable	0	N/A	open	nat - native material
rm903	0.1135	Variable	0	N/A	open	nat - native material
rm905	0.3755	Variable	0	N/A	open	nat - native material
rm906	0.0685	Variable	0	N/A	open	nat - native material
rm917	0.0719	Variable	0	N/A	open	nat - native material
SFMU14	0.0225	Variable	0	N/A	open	nat - native material
SFMU15	0.0131	Variable	0	N/A	open	nat - native material
SFMU16	0.0195	Variable	0	N/A	open	nat - native material
SFMU19	0.0372	Variable	0	N/A	open	nat - native material
U28N10C	0.5120	Variable	0	N/A	open	nat - native material
U28N10K	1.1704	Variable	0	N/A	open	nat - native material
U28N18	0.3011	Variable	0	N/A	open	nat - native material
U29N22B	3.3925	Variable	0	N/A	open	nat - native material
U29N45E	4.2377	Variable	0	N/A	open	nat - native material
U29N45E	2.0805	Variable	0	N/A	open	nat - native material
U29N45FA	2.3797	Variable	0	N/A	open	nat - native material
U29N45FAA	0.1127	Variable	0	N/A	open	nat - native material
U29N45FAB	0.2849	Variable	0	N/A	open	nat - native material
U29N45FAC	1.1433	Variable	0	N/A	open	nat - native material
U29N45FACA	0.3058	Variable	0	N/A	open	nat - native material
U29N84B	1.9774	Variable	0	N/A	open	nat - native material

Benefit/Risk Analysis (Table 3)

Numerical ratings for each road were entered in the Benefit/Risk table as evaluated using the guidelines determined by the Shasta-Trinity NF. Benefit/Risk scores for each criterion were calculated for each road, and averaged for overall benefit and risk ratings. Each discipline evaluated the road system and then ranked each road using the forest guidelines. Rankings are based on a scale of 0 to 5. Under the impacts columns, a rating of 0 indicates the lowest level of impact and 5 indicates the highest level of impact. Under the access columns, a rating of 0 indicates that the road has the lowest level of importance for access for that given resource and a

rating of 5 indicates the highest level of importance for access. Benefit/risk (B/R) ratios looked at the benefit of the route vs. the risk of the route and created a ratio showing ones most beneficial to keep vs. ones to close, improve, or decommission. Resource risks - Aquatic riparian refer to questions (AQ9, AQ10, AQ11, and AQ13), hydrologic process refers to questions (AQ1), and water quality refers to questions (AQ2, AQ3, AQ4, and AQ7). Terrestrial wildlife, TES plants, and weeds all use questions (TW1 and TW4) where public use risks and protection from harmful dust (naturally occurring asbestos) uses questions (PT4, RR2, and RR4). Resource benefits - Fire protection uses questions (PT2, PT3), fuel management uses question (PT1), commodity production uses questions (TM2 and TM3), public use benefits uses questions (SP1 and SU1), social issues uses (PV2, PV3, SI3 and SI4), and public access and range uses (GT1-4 and RM1). Economics was not evaluated since most major routes will be retained and improved.

Table 3. Benefit Risk Analysis.

Road Number	Current Resource Risks (IMPACTS)								Current Resource Benefits (ACCESS)							B/R Ratio	Remarks[1]
	Aquatic, Riparian	Hydrologic Process	Water Quality	Terrestrial Wildlife	TES Plants	Weeds	Public Use	Total Current Risk Rating	Fire Protection	Fuels Management	Commodity Production	Public Use	Social Issues	Access	Total Current Benefit Rating		
27N12	1	2	1	3	5	1	3	**2.3**	4	3	5	3	0	4	**3**	1.3	improve road, goes to 8 plantations and needed by fire, many sensitive plants, Tedoc allotment, 2 problem areas; blown out OSD and spring water above eroding fillslope, see SSI
27N48	1	1	1	5	1	1	2	**1.7**	3	1	5	3	0	1	**2**	1.2	retain, 1 inlet culvert is plugged, access to Plantation Thin Project
27N48A	1	2	1	5	1	1	2	**1.9**	3	1	4	3	0	1	**2**	1.0	retain, rock inside culvert but works, access to Plantation Thin Project
29N01	2	1	1	3	1	3	2	**1.9**	2	1	1	3	0	1	**2**	1.0	improve, severe inboard ditch erosion near intersection 29N45
28N02	2	2	2	5	5	1	4	**3.1**	4	3	1	1	0	3	**2**	0.6	retain as is to sunshine mine and rest decom down to Beegum Ck., critical fish habitat crossing issue, needed for fire, no plantations, 5 severe gully road erosion sites, serpentine areas, high priority route
28N05	1	2	1	5	5	1	3	**2.6**	5	3	3	3	0	3	**3**	1.2	improve with rolling-dips, needed for fire and has 3 plantations, Tedoc allotment access extensive road erosion on last 1/4 mi before Weston Ranch, has T&E botany serpentine
28N05	5	5	4	1	5	1	4	**3.6**	3	3	3	3	0	1	**3**	0.8	improve with rolling-dips, extensive road erosion on last 1/4 mi on to 29N45, has T&E botany serpentine
28N06	5	2	1	1	1	1	2	**1.9**	5	1	2	1	0	1	**2**	1.0	improve, roadfill erosion, needs rolling-dip
28N07	4	2	2	5	5	1	4	**3.3**	5	1	3	5	0	1	**3**	0.9	improve with rolling-dips, need for fire, several areas of moderate road base erosion and lack of rolling-dips going to

[1] SSI = sediment source inventory; BC = Beegum Corral TS; BR = Beegum Rega1n TS; SUP = special use permit; decom or adopt = candidate for decommissioning or adoption depending on risk vs. future need.

																	SUP Seeliger Ranch pvt. access gate, has T&E botany serpentine
28N07	4	2	2	5	5	1	3	**3.1**	3	3	2	1	3	1	**2**	0.6	short-term decom past Seeliger Ranch pvt gate to bottom along M. Beegum, has T&E botany serpentine
28N08	5	1	2	5	5	1	3	**3.1**	5	1	2	1	2	1	**2**	0.6	improve top section, moderate erosion lacks rolling-dips with lower before bottom cx failure, has T&E botany serpentine
28N08	0	1	2	5	5	1	3	**3.1**	5	1	2	1	2	1	**2**	0.6	short-term decom before Round Bottom meadows, bank erosion and road base erosion with crossings eroding and landslide perched above M. Beegum Ck, has T&E botany serpentine
28N09	1	2	1	3	1	1	1	**1.4**	0	1	5	3	0	2	**2**	1.4	retain and downgrade to ML 1 and close, after active BC timber sale, NSO nesting/roosting area
28N09A	1	1	1	5	1	1	1	**1.6**	5	3	5	3	0	1	**3**	1.9	retain, no issues except barrier, active BC timber sale, NSO nesting/roosting area
28N09B	1	2	1	5	1	1	1	**1.7**	5	3	5	3	0	1	**3**	1.8	retain, no issues except barrier, active BC sale, NSO nesting/roosting area
28N10	3	3	2	3	5	1	3	**2.9**	4	5	5	5	1	5	**4**	1.4	improve, crushed aggregate Beegum Legacy treated with c-dips, rolling-dips but still has some need of more rolling-dips and landslide area into Middle Beegum, main access to active BC timber sale
28N10A	1	3	2	3	5	1	2	**2.4**	0	1	5	3	1	2	**2**	0.8	retain, access to fuel break, Beegum Corral TS area, reforestation units, serp at end of road, no issues except barrier, has T&E botany serpentine, access to Plantation Thin Project
28N10C	3	2	2	1	1	1	3	**1.9**	3	1	2	3	0	1	**2**	1.0	decom short term, 1 plantation at end, at end of road that goes down to landing that has slid down into Middle Beegum Ck.
28N10E	1	3	2	1	1	1	3	**1.7**	1	1	5	3	0	1	**2**	1.2	retain, BC sale and plantations, Beegum Legacy treated with c-dips, rolling-dips, has T&E botany serpentine
28N10F	1	2	2	5	1	1	2	**2.1**	1	1	5	3	0	1	**2**	0.9	retain for BC sale then downgrade ML2 to ML 1 and close, plantations and BC sale, no issues except barrier, NSO nesting/roosting area
28N10L	5	2	1	5	1	1	2	**2.4**	0	1	3	3	0	2	**2**	0.8	improve and after BR sale downgrade to ML 1, has rills down steep section with non-functioning water-bars and U-road at end see SSI, access to plantations, NSO nesting/roosting area
28N10M	2	2	2	1	1	1	2	**1.4**	2	2	3	3	0	2	**2**	1.4	retain and downgrade ML 2 to ML1 and close after BC sale, no issues
28N10P	3	5	2	3	5	1	4	**3.3**	0	2	5	1	0	1	**1**	0.3	decommed already by BC sale, has T&E botany serpentine
28N10R	3	5	1	1	1	1	2	**2.1**	3	0	3	3	0	1	**1**	0.5	improve, needs rolling-dips, extensive road rilling down middle 1/2 mile section, see SSI
28N13	1	3	3	5	5	1	2	**2.9**	3	0	5	3	0	3	**2**	0.7	retain, recent cleaning of culverts no issues, access to Plantation Thin Project, access to plantations

28N14	1	2	1	3	1	1	3	**1.7**	0	0	5	3	0	3	**2**	1.2	improve, extensive rilling to rolling-dip that's filling up see SSI, access to 5 plantations, has T&E botany serpentine, access to Plantation Thin Project
28N14A	0	1	1	3	1	1	2	**1.3**	3	0	1	3	0	1	**1**	0.8	retain, no issues, has T&E botany serpentine, rock pit, NSO nesting/roosting area
28N14B	1	3	4	5	1	1	2	**2.4**	3	0	5	3	0	1	**2**	0.8	retain, no issues, access to Plantation Thin Project
28N14C	0	1	2	1	1	1	2	**1.1**	5	3	3	3	0	1	**3**	2.7	retain, no issues, access to plantations
28N15	3	5	2	5	1	1	3	**2.9**	5	3	5	3	3	3	**3**	1.0	improve, plantations throughout, 3 areas of concern, 2 are adjacent landings with runoff rilling road and 1 is cx with no culvert stream flow down-cutting road fill, Beegum Legacy installed rolling-dips, see SSI, has T&E botany serpentine
28N15A	0	1	1	5	1	1	2	**1.6**	3	5	5	3	1	2	**3**	1.9	retain, no issues, access to Plantation Thin Project, access to plantations
28N17	0	1	1	3	5	1	3	**2.1**	1	1	2	3	1	2	**2**	1.0	retain, no issues except U-road down to 28N29, goes to Round Mtn campsite, has plantation at end, has T&E botany serpentine
28N18	3	5	1	3	5	1	3	**3.1**	3	1	2	3	1	1	**2**	0.6	improve upper portion, has plugged culvert and failed rolling-dip causing road rilling on turn before Snake lake, short-term decom lower portion past Snake lake lower plantation due to unstable land and landslides into creek below, goes through serpentine T&E botany areas
28N19	1	2	2	3	1	1	2	**1.7**	5	1	3	3	1	4	**3**	1.8	improve, high importance for fire, plantations, range allotments, plugged culvert and failed rolling-dips causing road rilling sediment on to 28N35 paved road, see SSI
28N19C	1	2	2	3	1	1	4	**2.1**	3	1	2	3	0	2	**2**	1.0	decommissioned see SSI, has T&E botany serpentine, access to plantation
28N29	0	1	1	3	4	1	4	**2.1**	3	1	5	3	1	3	**3**	1.4	improve, plantations t/o, 3 problem areas; 1 due to non-functional rolling-dip causing shallow road gully, plugged inlet overtopping causing fill erosion, OSD undercut and eroding fill, see SSI, has T&E botany serpentine, access to Plantation Thin Project
28N29A	1	3	4	5	5	1	2	**3.1**	0	0	1	3	0	1	**1**	0.3	Short-term decom, NSO area and sensitive plants with no plantations
28N32	0	1	2	3	1	1	2	**1.4**	2	0	5	3	0	1	**2**	1.4	improve spots, plantations, gate is out of alignment and will not close, 3 miles has small slide partially blocking the road in granitics causing road rilling, down near end has road gullying to rolling-dip, see SSI, access to Plantation Thin Project
28N32A	1	2	2	5	1	1	2	**2.1**	3	0	5	3	0	1	**2**	1.0	retain, no issues, access to Plantation Thin Project
28N32B	1	3	2	3	1	1	2	**1.9**	3	0	5	3	0	1	**2**	1.1	retain, no issues, access to Plantation Thin Project, NSO nesting/roosting area
28N35	2	2	3	3	2	2	1	**2.1**	5	3	5	5	0	5	**4**	1.9	improve, paved road inboard ditch downcutting into paved road causing

																	extensive erosion and road failure near Round Mtn campsite see SSI, access to Plantation Thin Project
28N35	2	3	3	5	2	2	3	**2.9**	5	3	5	1	0	4	**3**	1.0	close, barrier is non-functioning and traffic down to slide area, slide is still cavitating road fill into main stem of South Fork of Beegum, access to Plantation Thin Project
28N35	2	2	2	5	2	2	2	**2.4**	5	3	5	3	0	4	**3**	1.3	retain, some rolling-dips are filling up, access to Plantation Thin Project
28N35A	1	1	1	5	1	1	2	**1.7**	5	3	5	3	0	1	**2**	0.4	downgrade to ML1, S-owl habitat, plantations, some gullying at switchback and some seepage on to road causing some road erosion, access to Plantation Thin Project and BC timber sale
28N35C	1	2	2	5	1	1	2	**2.1**	3	0	5	3	0	2	**2**	1.0	improve, some buried outlets that need cleaning see SSI, area scheduled for planting of clear-cuts
28N35F	0	1	1	3	5	1	4	**2.1**	3	0	5	3	0	2	**2**	1.0	retain, bad barrier, has T&E botany serpentine, access to Plantation Thin Project, NSO nesting/roosting area
28N35G	0	1	1	5	1	1	2	**1.6**	3	0	5	3	0	1	**2**	1.3	retain, no issues, access to Plantation Thin Project
28N35J	5	3	3	5	1	1	3	**2.9**	1	1	3	3	0	1	**2**	0.7	improve rock and roll the ditch, goes to plantations, rutting and spring runoff down road near top down road at .14 mi road has severe rutting, no inlet and runoff cutting road fill at switchback, see SSI
28N35L	5	3	3	5	1	1	2	**2.9**	2	0	5	3	0	2	**2**	0.7	not in this RAP see East Fork RAP
28N36	0	1	1	5	1	1	3	**1.7**	2	3	4	5	3	5	**4**	2.4	improve and upgrade to ML 3, main connector route, landslide area in pvt on south fork, Beegum Legacy treated with c-dips, rolling-dips but culvert at Post Creek needs alder tree removal blocking culvert also slide above S-fork needs stablization and area below intersection 28N47 has road rilling, has T&E botany serpentine, access to Plantation Thin Project, access to plantations, access to numerous arch sites
28N36A	0	1	1	3	1	1	2	**1.3**	0	0	1	3	4	1	**2**	1.5	retain, no issues goes to Post Ck Cabin
28N36B	1	2	2	5	1	1	2	**2.1**	3	3	3	3	0	1	**2**	1.0	retain, no issues, has T&E botany serpentine, access to plantations
28N47	1	2	2	5	1	1	3	**2.1**	0	0	5	3	0	2	**2**	1.0	retain, Beegum Legacy treated with c-dips, rolling-dips, no issues, access to Plantation Thin Project
28N47A	0	1	1	2	1	1	2	**1.1**	0	0	4	3	0	1	**2**	1.8	retain, no issues, access to Plantation Thin Project
28N60	1	1	1	5	5	1	4	**2.6**	2	0	1	1	3	2	**2**	0.8	short-term decom, has T&E botany serpentine, NSO nesting/roosting area, sacred spiritual site and historical LO artifacts
28N62	1	2	1	2	1	1	2	**1.4**	1	0	5	5	3	2	**3**	2.1	retain, no issues, access to Plantation Thin Project, goes to Stuarts Gap TH
28N62A	0	1	2	5	1	1	2	**1.3**	2	3	2	3		1	**2**	1.5	retain, no issues
28N64	1	2	1	5	1	1	3	**2.1**	3	1	5	5	0	4	**3**	1.4	retain, Beegum Legacy fixed all isues, has T&E botany serpentine, access to

																	Plantation Thin Project, access to plantations
28N64A	0	1	1	3	1	1	2	**1.3**	0	0	3	3	0	1	**1**	0.8	retain, no issues, access to plantations
28N64B	1	2	1	3	1	1	3	**1.7**	3	3	5	3	0	2	**3**	1.8	close and downgrade to ML1, rocky dip with no pipe causing rilling down road at 0.35 mi at end is landing with temporary road perched above Middle Beegum that is failing and sliding into Ck., has T&E botany serpentine, access to Plantation Thin Project, access to plantation
28N64C	0	1	1	5	1	1	2	**1.6**	0	0	5	3	0	2	**2**	1.3	retain, hunting camp city no issues, has T&E botany serpentine, access to Plantation Thin Project
28N64D	1	3	1	3	1	1	2	**1.7**	0	0	3	3	0	1	**1**	0.6	retain, no issues on road that goes through sag-pond area showing unstable landscape with jack-knife trees, has T&E botany serpentine, access to plantations
28N67	1	2	2	3	1	1	2	**1.7**	1	0	2	3	0	2	**1**	0.6	improve and downgrade to ML 1, goes through serpentine area, intersection with 28N15 has road erosion on steep section, access to plantations needed
28N68	1	1	1	2	5	1	4	**2.1**	0	0	4	1	3	4	**2**	1.0	improve, gate, and downgrade to ML 1 spots see SSI, large mud-bog just after B spur and steep area before B spur has rilling down road, has T&E botany serpentine, access to plantations, grazing allotment and Regan Mdws.
28N68A	1	3	4	3	5	1	3	**2.9**	0	0	2	1	0	1	**1**	0.3	retain, no issues, has T&E botany serpentine, access to plantations
28N68B	0	1	2	3	5	1	3	**2.1**	3	0	3	1	0	1	**1**	0.5	improve, erosion down road at 0.35mi from non-functioning dip that needs culvert see SSI, has T&E botany serpentine, access to plantations
28N74	0	1	1	3	1	1	3	**1.4**	0	0	4	3	0	1	**1**	0.7	long-term decom, look at plantations for need, short-term improve and improve barrier for closure, 2 old plantations, deep rutting into Post Creek, see SSI, has T&E botany serpentine
28N74A	1	2	2	3	1	1	3	**1.9**	0	0	3	3	0	1	**1**	0.5	long-term decom, look at plantations for need, short-term improve with improved barrier for closure, 2 old plantations, deep rutting into Post Creek, see SSI
28N74B	0	1	1	3	1	1	3	**1.4**	0	0	3	3	0	1	**1**	0.7	short-term decom 75% and leave rest for landing at start of route, has deep rutting into Post Creek, goes to plantation, see SSI
28N81	1	1	1	5	1	1	2	**1.7**	0	0	5	3	1	1	**2**	1.2	retain, no issues, fix barrier, active BC timber sale
28N82	3	5	3	3	1	1	2	**2.6**	0	0	5	3	0	1	**2**	0.7	retain, no issues, active BC timber sale
28N84	3	5	4	3	1	1	2	**2.7**	0	0	1	3	0	1	**2**	0.7	retain, no issues, access to planned plantations
28N92	1	2	1	4	5	1	4	**2.6**	1	0	3	3	0	2	**2**	0.7	retain, fix barrier, has T&E botany serpentine, access to plantations
28N92A	1	2	1	3	5	1	4	**2.6**	0	0	2	3	0	1	**2**	0.7	retain, no issues, has T&E botany serpentine, access to plantations
29N06	3	2	2	3	1	1	3	**2.1**	3	0	1	1	0	1	**2**	0.7	Retain with seasonal closure needed for fire recovery, all issues in SSI are fixed with

																	BAER, WFW3, and force account fire restoration work
29N22	3	5	2	3	1	1	2	**2.4**	3	0	1	3	0	1	**1**	0.4	decom section down steep slope to 28N10 along Noble Ridge, see Middle Cottonwood RAP
29N22B	1	1	1	3	1	1	2	**1.4**	3	0	1	3	0	1	**1**	0.7	short-term decom section down steep slope to 28N10 along Noble Ridge, see Middle Cottonwood RAP
29N22C	1	1	1	5	1	1	2	**1.7**	2	0	1	3	1	1	**1**	0.6	short-term decom to motorized trail, see Middle Cottonwood RAP
29N22D	1	1	1	5	1	1	2	**1.7**	4	5	1	3	1	1	**3**	1.8	short-term decom to motorized trail, see Middle Cottonwood RAP
29N28	2	2	1	3	3	1	2	**1.9**	3	5	5	3	0	4	**3**	1.6	improve, culvert @ mp 3.79 rusted out, see SSI, access to Plantation Thin Project
29N28D	2	2	2	3	1	1	2	**1.9**	2	1	3	3	0	2	**2**	1.0	retain, no issues, access to plantations
29N39	1	3	2	3	5	1	4	**2.7**	3	3	5	1	1	3	**3**	1.1	improve, gate, and downgrade to ML1, Beegum legacy fixes need repairs and area of road in sec 1 fill-slope has deep rilling, see SSI, has T&E botany concerns in serpentines, access to plantations
29N39A	1	2	1	3	4	1	4	**2.3**	2	5	2	1	0	1	**2**	0.9	short-term decom, goes to headwaters of North fork of Beegum, has T&E botany concerns in serpentines, no plantations
29N40	0	1	1	3	5	1	3	**2.1**	5	5	4	3	0	1	**3**	1.4	retain, wet area water under road without culvert, BR TS area, has T&E botany serpentine, access to plantations
29N40A	0	1	1	3	5	1	2	**1.9**	5	5	4	3	0	1	**3**	1.6	retain, no issues, has T&E botany serpentine, access to plantations
29N40B	1	3	3	5	1	1	3	**2.4**	3	1	4	3	0	1	**2**	0.8	retain, goes to headwaters of North fork of Beegum, access for 2 plantations
29N44	3	2	3	3	4	1	3	**2.7**	2	1	1	3	0	2	**1**	0.4	improve, due to excessive road erosion and berms, needs rolling-dips and berm removal, goes to campground, see SSI, has T&E botany serpentine
29N45	3	2	3	3	3	2	4	**2.9**	0	0	5	5	0	5	**2**	0.7	improve, excessive road erosion in steep sections causing rutting down middle, needs rolling-dips, rocking, culvert clean-outs, and 1 culvert replacement, see SSI, access to plantations
29N45A	1	2	1	3	4	1	4	**2.3**	1	0	5	3	0	2	**2**	0.9	retain closure, bermed at 0.81 mi no issues, access to Plantation Thin Project, access to plantations
29N45B	1	2	2	3	4	1	3	**2.3**	1	0	4	3	0	2	**2**	0.9	improve, excessive road erosion, needs rolling-dips due and berm removal, see SSI, access to plantations, has T&E botany serpentine
29N45F	1	1	1	3	1	1	3	**1.6**	0	0	1	1	1	3	**1**	0.6	improve, needs rolling-dips due to excessive road erosion, goes to private Walker Point Ranch, after Walker Point close the road
29N45R	1	1	1	3	1	1	2	**1.4**	1	3	4	3	0	2	**2**	1.4	retain closure, no issues blocked with berm at intersection FS45, access to plantations
29N84	1	3	2	3	5	1	2	**2.4**	3	3	5	3	0	1	**3**	1.3	improve, small gully at 1.55 mi needs rolling-dip see SSI rest is overgrown, has T&E botany serpentine, access to

																	plantations
29N84A	1	2	2	3	4	1	2	**2.1**	1	0	5	3	0	1	**2**	1.0	close, overgrown and no issues, see SSI, has T&E botany serpentine, access to plantations
pm1015																	decom or adopt
pm1016																	decom or adopt
rm028																	decom or adopt
rm029																	decom or adopt
rm030																	decom or adopt
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rm917																	decom or adopt
SFMU14																	decom or adopt
SFMU15																	decom or adopt
SFMU16																	decom or adopt
SFMU19																	decom or adopt
U28N10C	5	3	2	5	3	1	3	**3.1**	3	1	2	3	0	1	**2**	0.6	decom short term, 1 plantation at end, at end of road goes down to landing that has slid down into Middle Beegum Ck.
U28N10K	1	1	1	5	1	1	3	**1.9**	0	0	5	3	1	1	**2**	1.1	long-term block and close at 28N35 intersection depending on temp roads for Beegum Corral sale, has T&E botany serpentine
U28N18	3	5	1	3	5	1	3	**2.9**	3	1	2	3	1	1	**2**	0.7	short-term decom, unstable land and landslides into creek below, goes through serpentine T&E botany areas
U29N22B	0	1	1	3	5	1	3	**1.9**	4	1	3	3	1	1	**2**	1.1	short-term decom, fire break only not a route, but M. Cottonwood RAP says decom to trail, access to plantations
U29N45E	1	1	1	3	5	1	4	**2.3**	4	3	3	1	1	1	**2**	0.9	Tedoc Gap lots of plantations, temp road, lots of erosion and gullying, subpart B added??? In system then needs to improve or short-term decom, has T&E botany serpentine
U29N45E	0	1	1	5	5	1	4	**2.4**	4	0	3	1	1	1	**2**	0.9	lots of plantations, temp road, lots of erosion and gullying, subpart B added??? In system then needs to improve or short-term decom maybe
U29N45FA	3	5	2	1	1	1	3	**2.3**	1	3	1	1	0	1	**1**	0.4	After Walker Point Ranch (pvt land) need acess to decom? (see Moore Ranch)
U29N45FAA	1	2	3	1	1	1	3	**1.7**	0	1	1	1	0	1	**1**	0.6	decom?
U29N45FAB	0	1	2	1	1	1	3	**1.3**	0	1	1	1	0	1	**1**	0.8	decom?
U29N45FAC	0	1	1	3	1	1	3	**1.4**	0	1	1	1	0	1	**1**	0.7	decom?
U29N45FACA	1	1	1	5	1	1	3	**1.9**	0	1	1	1	0	1	**1**	0.5	decom?
U29N84B	0	1	1	3	1	1	3	**1.4**	3	3	5	1	1	1	**2**	1.5	decom , fire break only not a route, has T&E botany serpentine

Management Opportunities and Recommendations (Table 4)

Road status recommendations depicted in Table 4 are made with the goal of meeting the immediate and future management objectives for wildlife, botany, hydrology, aquatic risk, recreation, fire suppression access, and archeological concerns. These actions are categorized as 1) actions not requiring NEPA decisions (immediate) and, 2) actions requiring NEPA decisions (future – short-term or long-term) to address possible management objectives, Cumulative Watershed Effects (CWE), and Equivalent Roaded Area (ERA) concerns. These

recommendations look at current management objectives, and give additional consideration to reducing CWE and ERA concerns.

Actions not requiring NEPA analysis are routine maintenance, improving current road with stormpoofing fixes like berm removal, rocking ditches, creating rolling-dip and critical dips.

Actions requiring NEPA analysis are closing a road (permanent or seasonal), changing of road maintenance level (ML) either upgrading to a higher ML or downgrading to a lower ML or decommissioning a road either on a short-term basis (immediate pending NEPA) or on a long-term basis (following a current or proposed project).

Table 4. Management Opportunities and Recommendations.										
				NO NEPA REQUIRED		NEPA REQUIRED				
Road Number	**ML**	**Risk Score**	**Benefit Score**	**Retain as is[1]**	**Improve Road**	**Change System**	**Annual Closure**	**Decom[2]**		**Comments[3]**
								Short-Term	Long-Term	
27N12	2	**2.3**	**3**		X					Improve spots
27N48	1	**1.7**	**2**	X						
27N48A	1	**1.9**	**2**	X						
28N01	2	**1.9**	**2**		X					Improve spots
28N02	2	**3.1**	**2**	X				X		Retain to Sunshine, Decom Sunshine Mine to Beegum Ck
28N05	2	**2.6**	**3**		X					Improve upper
28N05	2	**3.6**	**3**		X					Improve spots
28N06	2	**1.9**	**2**		X					Improve spots
28N07	2	**3.3**	**3**		X					Improve spots
28N07	2	**3.1**	**2**					X		Decom to Beegum
28N08	1	**3.1**	**2**		X			X		Improve upper, lower decom to Beegum
28N09	2	**3.1**	**2**			X				Downgrade to ML 1 and gate after BC sale
28N09A	1	**1.4**	**2**	X						
28N09B	1	**1.6**	**3**	X						
28N10	3	**1.7**	**3**		X					Improve spots
28N10A	1	**2.9**	**4**	X						
28N10C	1	**2.4**	**2**					X		Decom to slide
28N10E	2	**1.9**	**2**	X						
28N10F	2	**1.7**	**2**			X				Downgrade to ML 1 and gate after BC sale

28N10L	2	**2.1**	**2**		X	X				Improve then downgrade to ML 1 and gate after BC sale
28N10M	2	**2.4**	**2**			X				Downgrade to ML 1 after BC sale
28N10P	1	**1.4**	**2**	X						BC sale decommed it after thin
28N10R	1	**3.3**	**1**		X					Improve spots
28N13	2	**2.1**	**1**	X						
28N14	2	**2.9**	**2**		X					Improve spots
28N14A	2	**1.7**	**2**	X						
28N14B	2	**1.3**	**1**	X						
28N14C	2	**2.4**	**2**	X						
28N15	2	**1.1**	**3**		X					Improve spots
28N15A	2	**2.9**	**3**	X						
28N17	2	**1.6**	**3**	X						
28N18	2	**2.1**	**2**		X					Improve upper spots before Snake Lake
28N19	2	**3.1**	**2**		X					Improve intersection with 28N35
28N19C	1	**1.7**	**3**	X						BC sale decommed it after thin
28N29	2	**2.1**	**2**		X					Improve spots
28N29A	2	**2.1**	**3**					X		Decom due to NSO and T&E botany
28N32	2	**3.1**	**1**		X					Improve spots
28N32A	2	**1.4**	**2**	X						
28N32B	2	**2.1**	**2**	X						
28N35	4	**1.9**	**2**		X					Improve spots
28N35	1	**2.1**	**4**		X		X			Improve barrier and pull road fill back, rip-rap and reveg.
28N35	3	**2.9**	**3**	X						
28N35A	2	**2.4**	**3**			X				Downgrade to ML 1 and gate for NSO habitat
28N35C	2	**1.7**	**2**		X					Improve spots
28N35F	1	**2.1**	**2**	X						Fix barrier
28N35G	1	**2.1**	**2**	X						

28N35J	2	**1.6**	**2**		X					Improve spots
28N35L	1	**2.9**	**2**	X						See East Fork RAP
28N36	2	**2.9**	**2**		X	X				Improve spots and Upgrade to ML 3
28N36A	2	**1.7**	**4**	X						Post Cabin LO
28N36B	1	**1.3**	**2**	X						
28N47	2	**2.1**	**2**	X						
28N47A	1	**2.1**	**2**	X						
28N60	2	**1.1**	**2**					X		Decom for NSO habitat, T&E botany, & cultural
28N62	3	**2.6**	**2**	X						
28N62A	2	**1.4**	**3**	X						
28N64	3	**1.3**	**2**	X						
28N64A	2	**2.1**	**3**	X						
28N64B	2	**1.3**	**1**			X				Improve spots and downgrade to ML 1
28N64C	1	**1.7**	**3**	X						
28N64D	2	**1.6**	**2**	X						
28N67	2	**1.7**	**1**			X				Downgrade to ML 1 and gate for NSO habitat and botany
28N68	2	**1.7**	**1**		X	X				Improve spots and downgrade to ML 1
28N68A	2	**2.1**	**2**			X				Downgrade to ML 1
28N68B	2	**2.9**	**1**		X	X				Improve spots and downgrade to ML 1
28N74	1	**2.1**	**1**		X				X	Improve spots then LT-decom after plantation thin
28N74A	1	**1.4**	**1**		X				X	Decom after plantation thin
28N74B	1	**1.9**	**1**					X		Decom due to excessive erosion
28N81	1	**1.4**	**1**	X						
28N82	1	**1.7**	**2**	X						
28N84	2	**2.6**	**2**	X						
28N92	2	**2.7**	**2**	X						Fix barrier

28N92A	2	**2.6**	**2**	X						
29N06	2	**2.6**	**2**	X			X			Seasonal closure
29N22	2	**2.1**	**2**	X				X		Improve to C spur rest short-term decom
29N22B	2	**2.4**	**1**					X		Short-term decom
29N22C	2	**1.4**	**1**					X		Short-term decom
29N22D	2	**1.7**	**1**					X		Short-term decom
29N28	3	**1.7**	**3**		X					Improve spots
29N28D	2	**1.9**	**3**	X						
29N39	2	**1.9**	**2**		X	X				Improve spots and downgrade to ML 1 and gate for T&E botany
29N39A	1	**2.7**	**3**					X		Decom for T&E botany
29N40	1	**2.3**	**2**	X						
29N40A	1	**2.1**	**3**	X						
29N40B	1	**1.9**	**3**	X						
29N44	3	**2.4**	**2**		X					Improve spots erosion into N. Beegum Ck.
29N45	3	**2.7**	**1**		X					Improve spots, excessive erosion throughout road from Hwy 36 to Tedoc Gap
29N45A	2	**2.9**	**2**	X						
29N45B	2	**2.3**	**2**		X					Improve spots
29N45F	2	**2.3**	**2**		X		X			Improve spots before ranch and after ranch close road
29N45R	2	**1.6**	**1**	X						
29N84	1	**1.4**	**2**		X					Improve spots
29N84A	1	**2.4**	**3**	X						Natural recapture is overgrown
pm1015	0							X		Decom or adopt
pm1016	0							X		Decom or adopt
rm028	0							X		Decom or adopt
rm029	0							X		Decom or adopt
rm030	0							X		Decom or adopt

rm032	0							X		Decom or adopt
rm048	0							X		Decom or adopt
rm049	0							X		Decom or adopt
rm051	0							X		Decom or adopt
rm072	0							X		Decom or adopt
rm073	0							X		Decom or adopt
rm090	0							X		Decom or adopt
rm094	0							X		Decom or adopt
rm1000	0							X		Decom or adopt
rm1021	0							X		Decom or adopt
rm1026	0							X		Decom or adopt
rm1026b	0							X		Decom or adopt
rm1028	0							X		Decom or adopt
rm1030	0							X		Decom or adopt
rm1032	0							X		Decom or adopt
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rm1102	0							X		Decom or adopt
rm1103	0							X		Decom or adopt
rm1108	0							X		Decom or adopt
rm1110	0							X		Decom or adopt
rm1111	0							X		Decom or adopt
rm1112	0							X		Decom or adopt
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rm1159	0							X		Decom or adopt
rm1175	0							X		Decom or adopt
rm1219	0							X		Decom or adopt
rm1228	0							X		Decom or adopt
rm1229	0							X		Decom or adopt
rm133	0							X		Decom or adopt
rm1680	0							X		Decom or adopt
rm1681	0							X		Decom or adopt
rm1682	0							X		Decom or adopt
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rm894	0							X		Decom or adopt
rm895	0							X		Decom or adopt
rm896	0							X		Decom or adopt
rm898	0							X		Decom or adopt
rm899	0							X		Decom or adopt
rm901	0							X		Decom or adopt
rm903	0							X		Decom or adopt
rm905	0							X		Decom or adopt
rm906	0							X		Decom or adopt
rm917	0							X		Decom or adopt
SFMU14	0							X		Decom or adopt
SFMU15	0							X		Decom or adopt
SFMU16	0							X		Decom or adopt
SFMU19	0							X		Decom or adopt
U28N10C	0	**3.1**	**2**					X		Decom to landing, excessive erosion and landslide
U28N10K	0	**1.9**	**2**						X	Long-term decom after CD timber sale
U28N18	0	**2.9**	**2**					X		Short-term decom
U29N22B	0	**1.9**	**2**					X		Decom see M. Cottonwood RAP
U29N45E	0	**2.3**	**2**					X		Decom section above Tedoc Gap
U29N45E	0	**2.4**	**2**			X				Added due to TrvRt subpart B
U29N45FA	0	**2.3**	**1**						X	Long-term decom depending on acess across pvt land (see Moore R)
U29N45FAA	0	**1.7**	**1**						X	L-T decom depending

U29N45FAB	0	**1.3**	**1**						X	L-T decom depending
U29N45FAC	0	**1.4**	**1**						X	L-T decom depending
U29N45FACA	0	**1.9**	**1**						X	L-T decom depending
U29N84B	0	**1.4**	**2**					X		Decom T&E botany

(Decom or adopt = candidate for decommissioning or adoption depending on risk vs. future need; ML = road maintenance level)

Road Recommendations

(see map packet for specific recommendation locations)

There are 60 miles of classified maintenance level 3 & 4 roads, 94 miles of classified maintenance level 2 roads along with 18 miles of classified maintenance level 1 roads, and 17 miles of unclassified roads within the Beegum Creek Fifth-Field Planning Watershed for a total of 190 miles of roads.

Level 1 through 4 Road Recommendations

All level 1 and 2 roads not directly mentioned in the following narrative fall into the category of continued maintenance and retain. General maintenance and possible upgrade of these roads should continue based on systematic road inventories. Specific projects that involve any of these roads must consider the current condition of the road and evaluate that condition versus the needs of the project.

Level 3 and 4 roads have had substantial improvements due to the Beegum Legacy contract work of 2009. A total 63 miles of road storm-proofing improvements were made on 28N10, 28N10E, 28N15, 28N36, 28N47, 28N64, and 29N39. These improvements included rolling-dips, critical-dips, rocking, low-water crossings, stream-bank stabilization, grading, and berm removals.

28N36 roll-dip w rock outlet

28N10 critical dip w new CMP

28N10 rocked rolling-dip

Due to the size and scope of the Beegum RAP many areas still remain to make improvements on additional sections of 28N10, 28N35, 28N36, 29N44, and 29N45 (see road recommendations map in Map Section).

These problems include non-functioning inboard-ditch roads, large fills in unstable land, road prism erosion, and roads in unstable landslide prone inner-gorges (see map depicting unstable landslide prone areas along with gps located problem areas). Solutions to these problems range from creating rolling-dips, removing inboard-ditch and out-sloping, re-routing or road reconstruction.

Specific Road Recommendations for level 3 and 4 roads (see representative pictures above and treatment map):

- Forest Road 28N10: Needs rolling-dips (4 ea) to curb road base erosion in the areas past intersection of 28N07, before and just after 28N10A, needs rock gabion fill stabilization in landslide inner-gorge area past intersection 28N18, and large fill with small culvert needs to be replaced with proper sized culvert in section 26, T28N, R10W.

- Forest Road 28N35: Needs rocked inboard ditch to curb excessive road base erosion and gully erosion on large turn after intersection of 28N19 heading towards Stuarts Gap.

- Forest Road 28N36: Needs rolling-dips (6 ea) to curb road erosion in several steep areas past intersection 28N47. Has large landslide in need of rock gabion fill stabilization in unstable inner-gorge area just before and after crossing the south fork of Beegum Creek.

- Forest Road 29N44: This road goes to the North Fork Beegum Creek campground that has poor drainage with lots of erosion into North Beegum Creek. This route is in need of rolling-dips (3 ea), 1 culvert upsizing, and old bridge removal that poses a safety threat to campers.

- Forest Road 29N45: This route has numerous areas of deep rilling, inboard ditch failures, rusted undersized culverts, and bare mineral soil sections with wheel rutting. Numerous sections of this road needs rolling-dips (from Hwy 36 to 2 mi mark just before Kelsey Gulch, before 29N45F, and after 29N45R for a total of 10 dips), 3 culvert cleanouts, 2 culverts upsizing, road rocking on selected sites from Hwy 36 to turnoff to Pattymochus lookout, and inboard ditch rocking on large turn before 28N01 (Pattymochus CDF lookout).

29N45 inboard ditch failure

28N10 excessive fill failure

28N35 excess ditch erosion

Specific Road Recommendations for level 1 and 2 roads:

- Forest Roads 28N06 and 29N06 go to Beegum Gorge Campground and were improved with fire recovery money in response to the Noble Fire of 2008. Seasonal closure (October to May) is needed to allow recovery after the fire and to allow road improvements to harden.

- Forest Roads 28N10P, 28N29A, 28N60, and 29N39A: These roads are located in Northern Spotted Owl foraging habitat, T&E botany serpentine endemics, and cultural sites. The risks associated with these roads are high with the benefits being low. The analysis team recommends that these roads be short-term decommissioned.

- Forest Roads 28N02 lower, 28N07 lower, 28N08 lower, 28N10C, and 28N74B: These roads are located in areas of instability and excessive road erosion. All of these routes

are currently slated to be short-term decommissioned to reduce erosion into Middle and South Fork of Beegum Creek.

28N74 excess road erosion

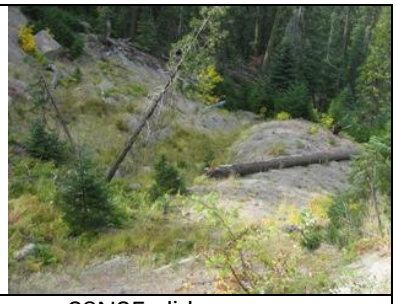
28N07 excess road erosion

28N35 Rap Trap slide barrier

- Forest Roads 29N22, 29N22B, 29N22C, and 29N22D: These roads have recommendations of short-term decommissioning from the Middle Cottonwood RAP. If these routes are to be decommed within the Middle Cottonwood RAP area then the 29N22D route that goes into Beegum Gorge needs to be decommissioned as well. These routes are overgrown, rutted and sections are extremely steep that need reduced traffic to curb erosion.

- Forest Roads 28N19C, 28N74, and 28N74A: These roads are located in areas of instability and excessive road erosion. All of these routes are currently slated for long-term decommissioned (after plantation thinning) to reduce erosion into South Fork of Beegum Creek. In the short-term 28N74 needs spot improvements of dips and barrier to block traffic.

28N35 S-Fork Beegum slide



28N35 slide recovery

- Forest Roads 28N35 Rat Trap Gap slide section, 28N64B, and 29N84A: All of these routes need to be closed. Road 28N35 Rat Trap slide, need to close this section to slide since it is unstable and poses public safety risk. The current earthen barrier is non-functional and needs to be improved with a guard rail. The road is also breaking off road-fill into main stem of South Fork of Beegum. To curb this excessive erosion, the fill needs to pulled back, rip-rapped, and stabilized with willows. Roads 28N64B and 29N84B need to be closed due to landslide at end of 28N64B and both going through T&E botany endemic serpentine habitat.

- Forest Roads 28N09, 28N10F, 28N10L, 28N10M, 28N35A, 28N67, 28N68, 28N68A, 28N68B, and 29N39 these routes need to be downgraded from maintenance level (ML) 2 to ML 1 with annual closure due to NSO nesting/roosting habitat and T&E botany endemic serpentine to reduce traffic and cross-country travel.

29N68 serpentine rd erosion

28N10M spotted owl habitat

- Forest Road 28N36 needs to be upgraded from ML 2 to ML 3 due to 28N35 Rat Trap Gap road being permanently closed due to major slide and traffic being routed down on 28N36 to get from Rap Trap Gap to Stuarts Gap 28N35 road section. Also several sections need rolling-dips to curb road-base erosion from 20N10 intersection down to the South Fork of Beegum Creek. Additionally the South Fork section of 28N36 needs landslide stabilization of road fill using geo-rock step gabions, the Post Creek crossing culvert needs clearing of intake vegetation, and fish barrier of culvert not on grade needs to be addressed.

28N36 Post Ck. fish barrier

- Forest Roads 27N12, 28N01, 28N05, 28N07, 28N08, 28N10L, 28N10R, 28N14, 28N15, 28N18, 28N19, 28N29, 28N32, 28N35C, 28N35J, 28N68, 28N68B, 28N74, 29N28, 29N39, 29N45B, 29N45F, and 29N84 all need road improvements and storm-proofing. Improvements ranging from rolling-dips with rocked outlets, rocked ditches, critical-dips, road grading to remove berms, culvert replacements, mulching and seeding road fills, and road rocking (see Table 2 and SSI for more details).

27N12 inlet and ditch failure

28N68 road failure

29N39 road fill failure

- All Level 1 Roads with Barrier Closures: Earthen barriers need to be evaluated for effectiveness. Many of the barriers are no longer a barrier to vehicles and almost none are a barrier to OHV use. Of all Level 1 roads with a earthen barrier that were surveyed, only roads 28N10P, 28N19C, 28N36B, 28N81, 28N82 and 28N84A have barriers that have effectively closed the road.

Unclassified Roads Recommendations

- Unclassified Roads U28N10C, U28N18, U29N22B, U29N45E Tedoc Gap section, and U29N84B: These routes are recommended for short-term decommissioning due to location in unstable inner-gorges with landslides or severely eroded ridge routes contributing excessive amounts of sediments to intermediate creeks feeding into Beegum Creek.

		
U28N10C land failure to ck.	U29N22B excess erosion	U28N18 landing failure to ck.

- Unclassified Roads U29N45FA, U29N45FAA, U29N45FAB, U29N45FAC and U29N45FACA: These unclassified roads are accessed across private land that the forest service does not have right-of-way access so are slated for long-term decommissioning until right-of-way access is granted. These routes have excessive erosion on highly erodible sandstone soils (Parrish sandy loam).

- Unclassified Road U29N45E: This unclassified road has been adopted by Travel Route Management from a road to trail due to lack of severe erosion and being a ridge route that provides a loop for OHV use.

- Unclassified Road U28N10K: This route goes through T&E botany serpentine and has rilling down the road. This route should be decommissioned at the junction of 28N35. This route is needed for Beegum Corral timber sale but after the project should be decommed.

PM, RM, SFMU Jeep/Trails Recommendations

These routes are on FS land that are not classified and not maintained. These were tracked as part of the FS Travel Route database but lack data on what type of road they are and what condition they are in. They are shown on maps to locate routes for further investigations necessary to obtain information on what to do with these routes. With the recent Record of Decision on prohibition of cross-country travel, all travel routes identified as user created routes that were not brought in through Travel Management Subpart B[1] will be recommended for candidate decommissioning or adoption depending on resource risks and need. Routes that have issues are ones that go into unstable inner-gorges with the biggest potential impacts of sliding

[1] Travel Management Subpart B Record of Decision, March 2010.

into the creeks. Ridgeline routes have the least impact since they are high in the watershed and are located on stable landscapes.

	
U29N64B road sliding into creek	U29N45E stable ridgeline route

Benefits of Recommended Treatments

These treatments are recommended with the focus on reducing sediments to Beegum Creek, increasing quality habitat for Northern Spotted Owl (NSO), decreasing the impacts to endemic serpentine communities, decreasing the spread of weeds, reducing the impacts to cultural sites by roads storm-proofing to put roads in a more long-term sustainable state requiring less maintenance.

Sediments are reduced by decommissioning roads that pull culverts and fill back from crossings, road outsloping and berm removal, ripping impermeable surfaces, seeding and mulching. These roads are: 28N10P, 28N29A, 28N60, 28N02 lower, 28N07 lower, 28N08 lower, 28N10C, 28N74B 29N39A, 28N19C, 28N74, 28N74A, 29N22, 29N22B, 29N22C and 29N22D. Improving roads by spot improvements or storm-proofing will arrest excessive erosion and fix trouble spots of poor drainage or concentrated flows. These roads are: 27N12, 28N01, 28N05, 28N07, 28N08, 28N10L, 28N10R, 28N14, 28N15, 28N18, 28N19, 28N29, 28N32, 28N35C, 28N35J, 28N68, 28N68B, 28N74, 29N28, 29N39, 29N45B, 29N45F, and 29N84.

Habitat is increased for NSO by decommissioning, closing roads, or by lowering the maintenance level to decrease traffic. Roads slated for downgrading are: 28N09, 28N10C, 28N10F, 28N10L, 28N10M, 28N29A, 28N35A, 28N60, 28N67, and 28N74.

Serpentine botanical endemic communities are protected by decreasing traffic in these areas and decreasing the spread of weeds. These roads are: 28N02, 28N07, 28N08, 28N60, 28N68, and 29N39.

Exposure to naturally occurring asbestos (NOA) will be decreased due to less exposure to areas likely containing asbestos in the soil. These routes are: 28N02, 28N05, 28N07, 28N08, 28N10E, 28N10P, 28N18, 28N19C, 28N60, 28N64B, 28N64D, 28N68, 28N92, 28N92A, 29N06, 29N39, 29N39A, and 29N40.

Cultural sites are more protected by reducing traffic and camping in these areas. Roads affected are 28N60 and 28N68.

Cross-country routes (PM, RM, SFMU routes) will be decommissioned unless they are needed for future management and are in a benign location and condition.

Roads that are retained will be improved by using information from the sediment source inventory, specialist inputs, and field visits checking current conditions. With improved roads that

put roads in a more self sustaining state, fire protection, commodity access, and recreation opportunities will be increased in areas that have fewer impacts to resources.

MAPS (see attached map packet)

REFERENCES

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Route Focused Sediment Source Inventory of Beegum Watershed Report, Prepared for Shasta-Trinity National Forest by Natural Resources Management Corporation. 2009.

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APPENDIX A – NARRATIVE RESPONSES TO SPECIFIC RAP QUESTIONS

IN ADDITION TO THE SCORING PROVIDED FOR ROADS WITHIN THE BEEGUM RAP ANALYSIS, THE FOLLOWING NARRATIVES WERE PROVIDED TO CLARIFY SOME OF INDIVIDUAL SPECIALIST METHODS AND CONCERNS.

Hydrology / Fisheries Biology – Fred Levitan and Eric Wiseman

AQ (1). How and where does the road system modify the surface and subsurface hydrology of the area?

Roads can greatly increase the total length of concentrated flows within a watershed, effectively extending the total natural network of flowing water. This can occur most easily with insloped roads where the ditch relief culverts measurably increase the discharges that would otherwise be naturally occurring at the points of confluence. The risk to natural processes develops when the sum of the natural and road-related discharges exceed the natural carrying capacity of channels, leading to local flooding and potentially serious erosional consequences.

Subsurface drainage is often exposed by road cutbanks that can in turn be captured by inboard ditches and relieved as surface flows. This can add to the total flow volume as described above. The exposure of such flows can also lead to cutbank instability since the area intercepted is often saturated all year long.

Many of the road segments under consideration in the Beegum Creek area are at or near ridge lines where subsurface and/or significant surface flows do not naturally occur at those slope positions.

AQ (2). How and where does the road system generate surface erosion?

All native road surfaces, cutbanks and usually fill slopes are composed of bare surfaces. Bare native surfaces in wildland settings are therefore prone to surface erosion during precipitation (or rapid snowmelt) events. Vehicular use on roads helps generate fine-grained material later prone to surface erosion. Natural weathering processes on cutbank and fillslope surfaces continually lead to the same vulnerability. Depending on the inboard or outboard road surface angle, the gradient of the road, and the cutbank and fillslope angles, such surface erosion can eventually lead to rill and gully erosion. Frequently the rill or gully erosion that develops on road surfaces during the course of a winter season can be eliminated through routine grading maintenance, starting the cycle over again when the ensuing rainy season begins.

There is no reason to not expect typical rates of surface erosion occurring on the road network in the Beegum Creek study area.

AQ (3). How and where does the road system affect mass wasting?

Road-generated mass-wasting episodes are usually the most catastrophic consequence of roads to aquatic systems in wildland settings. Sometimes just one or a few mass wasting sites can virtually overwhelm natural drainage systems for decades. Mass wasting can be directly caused by roads for a variety of reasons. If roads are routed through already unstable topography, or even formerly naturally stable areas prone to instability, mass wasting can ensue. Often this occurs by removing natural support through cutbank excavation or overloading hillslopes with fillslope weight. If inboard ditch relief culverts are placed too infrequently, runoff during large storms can randomly plunge off outboard road locations that can lead to gulling and mass wasting. Undersized culverts can plug or be overwhelmed during large storms leading to

concentrated flow being diverted down the road surface. Similarly, random points of exit from the road bed can quickly lead to gulling or larger mass wasting.

Mass wasting can occur via the process of extending the effective road network via inboard ditches. Natural channels developed as a consequence of direct rainfall runoff can be overtopped when road-contributed water is added. Such channels can then experience inner gorge slope failures leading to mass wasting.

Beegum Creek road segments occasionally cut across 'headwall' areas of small tributaries that, depending upon how the road is constructed, can lead to debris torrents extending for many miles down the stream course. Because most or all of the road segments under study have been in place for decades, then likely those areas that may have been easily prone to such results would have likely occurred already. Areas prone to this problem may be widely scattered in this basin.

AQ (4): How and where do road-stream crossings influence local stream channels and water quality?

Culverted road-stream crossings can cause large inputs of sediment to streams during large storms when culvert capacity is exceeded or when debris blocks culvert entrances. Water overtopping a road at a blocked culvert can lead to catastrophic road fill failure, with associated road and environmental damage. Undersize culverts (those with less than a 100 year flow capacity) and mid-slope culverts lacking critical dips are most at risk for catastrophic failure. Most roads evaluated for this RAP are level 1 roads, located on or near ridges with relatively low risk of culvert failure.

AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains; constraints on channel migration; and the movement of large wood, fine organic matter, and sediment?

Roads alter physical channel dynamics where roads encroach on stream banks and at stream crossings. Streams within the Beegum RAP area are generally well confined single thread channels that have limited flood plains and would not be expected to meander. Other effects to physical channel dynamics occur at culverts where roads behave as dams, blocking the downstream movement of wood, organic matter, and sediment. These effects can be lessened by replacing undersized culverts with properly sized culverts (100 year storm capacity) and removing all road crossings that are not necessary.

AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?

When roads are constructed adjacent to streams, riparian vegetation is often removed to accommodate the road right-of-way, improve visibility, and reduce the hazard of trees impacting the roadway. The most significant effects are loss of large woody debris that can provide important habitat components for fish and other aquatic wildlife, loss of shading that can lead to elevated water temperatures and reduce allochthonous input required to sustain aquatic invertebrates.

Wildlife Biology – Mark Goldsmith

Effects of transportation system on wildlife –
The question addressed in this RAP process to assess effects of the transportation system on wildlife is TW-1 (terrestrial wildlife #1) - **What are direct effects of the road system on terrestrial species habitat?** Motorized use of roads causes both direct and indirect effects on wildlife in a variety of ways, as described below:

	Road- and Trail-Associated Factors	Effects of the Factors
Human-Caused Mortality	Collisions	Death or injury from a motorized vehicle running over or hitting an animal.
	Hunting/trapping	Mortality from hunting or trapping as facilitated by road and trail access.
	Poaching	Increased illegal take of animals as facilitated by trails and roads.
	Negative human interactions	Increased mortality of animals resulting from increased contacts with humans, as facilitated by road and trail access.
	Collection	Collection of live animals (such as amphibians or reptiles) as facilitated by roads or trails.
Changes in Behavior	Displacement or Avoidance	Spatial shifts in populations or individual animals away from human activities on or near roads or trails.
	Disturbance at a specific location	Displacement of individual animals from a specific location that is being used for reproduction or rearing of young.
	Physiological response	Increase in heart rate or stress hormones (which may decrease survivorship or productivity) when near a road or trail.
Habitat Modification	Habitat loss and fragmentation	Loss and resulting fragmentation of habitat due to the establishment or use of roads or trails and associated human activities.
	Edge effects	Changes to habitat microclimates associated with an "edge" effect created by roads or trails.
	Snag and down log reduction	Reduction in density of large snags and downed logs resulting from their removal near roads as hazard trees or fuelwood.
	Route for competitors and predators	Providing access or greater hunting success for competitors or predators than would otherwise have existed.
	Movement barrier	Interference with dispersal or other movements due to either the road itself or by human activities on or near roads or trails.

Wildlife risk rating system –
The criteria used to formulate wildlife risk ratings for this RAP process focus on effects to northern spotted owls (*Strix occidentalis caurina*). This species is strongly associated with conifer stands dominated by large overstory trees, and nest sites are usually located within stands of old-growth and late-successional (late seral) forest. This species has been listed as threatened by the U.S. Fish and Wildlife Service, and the northwest California study area of the Northwest Forest Plan showed spotted owl population declines over the last 10 years (Lint 2005), including declining reproductive success and survivorship. The criteria used to assess road-related effects to this

species are the presence of suitable northern spotted owl habitat, designated northern spotted owl Critical Habitat, and Late-Successional Reserves.

Northern spotted owl suitable habitat -
The Beegum RAP analysis area supports extensive forested habitats suitable for spotted owl nesting, roosting and foraging (Map 1). For this RAP, the wildlife risk rating for roads within nesting-roosting-foraging habitat is #5, the greatest impact. The rating for roads within areas suitable for foraging but not nesting or roosting is #3, a moderate impact.

Northern spotted owl Critical Habitat -
Critical Habitat for Northern spotted owls (Map 2) was designated in May 1991, and reviewed and modified most recently in September, 2008 (USDI 2008). The risk rating for roads within Critical Habitat is #5, the greatest impact.

Late-Successional Reserve -
The purpose of this land management prescription is to provide special management for Late-Successional Reserves (LSR's) and Threatened and Endangered species (Map 3). A Desired Condition of LSR's is to remove excess roads from the transportation system (USDA 1999). The risk rating for roads within LSR is #5, the greatest impact.

For this RAP, the risk ratings are weighted to reflect the percentage of each road that meets the criteria listed above (R=3S+5L where R=risk rating, S=percentage or road with a maximum rating of 3, and L=percentage of road with maximum rating of 5). Since roads are not considered a benefit to wildlife, the benefit rating is "0" for all roads.

Reducing effects to wildlife -
The wildlife risk ratings are combined with other risk and benefit ratings to formulate recommendations for management of the transportation system. Recommendations to reduce effects to wildlife include road closure and road decommissioning/obliteration.

Road closure –
Closing roads by changing the maintenance level to "1" decreases effects to wildlife by reducing human-caused mortality and changes in wildlife behavior. Roads with Maintenance Level 1 are not maintained, so roads with stream crossings that require maintenance are not appropriate for closure. Closure of other roads, including those needed for fire access or silvicultural treatments, is acceptable and recommended because these roads can be re-opened when needed and re-closed after the activity is completed. In the meantime, the reduction in disturbance and vehicular access will provide an ongoing benefit to wildlife.

Road decommissioning/obliteration –
Removing roads through decommissioning/obliteration will cause a greater benefit to wildlife than road closure. In addition to reducing human-caused mortality and changes in wildlife behavior, it also reduces the effects of habitat modification by allowing recovery of forested habitats where roadways currently exist. This action is permissible where the road is not needed (for fire access, silvicultural treatment, etc.) within the long-term planning framework (approximately 20 years).

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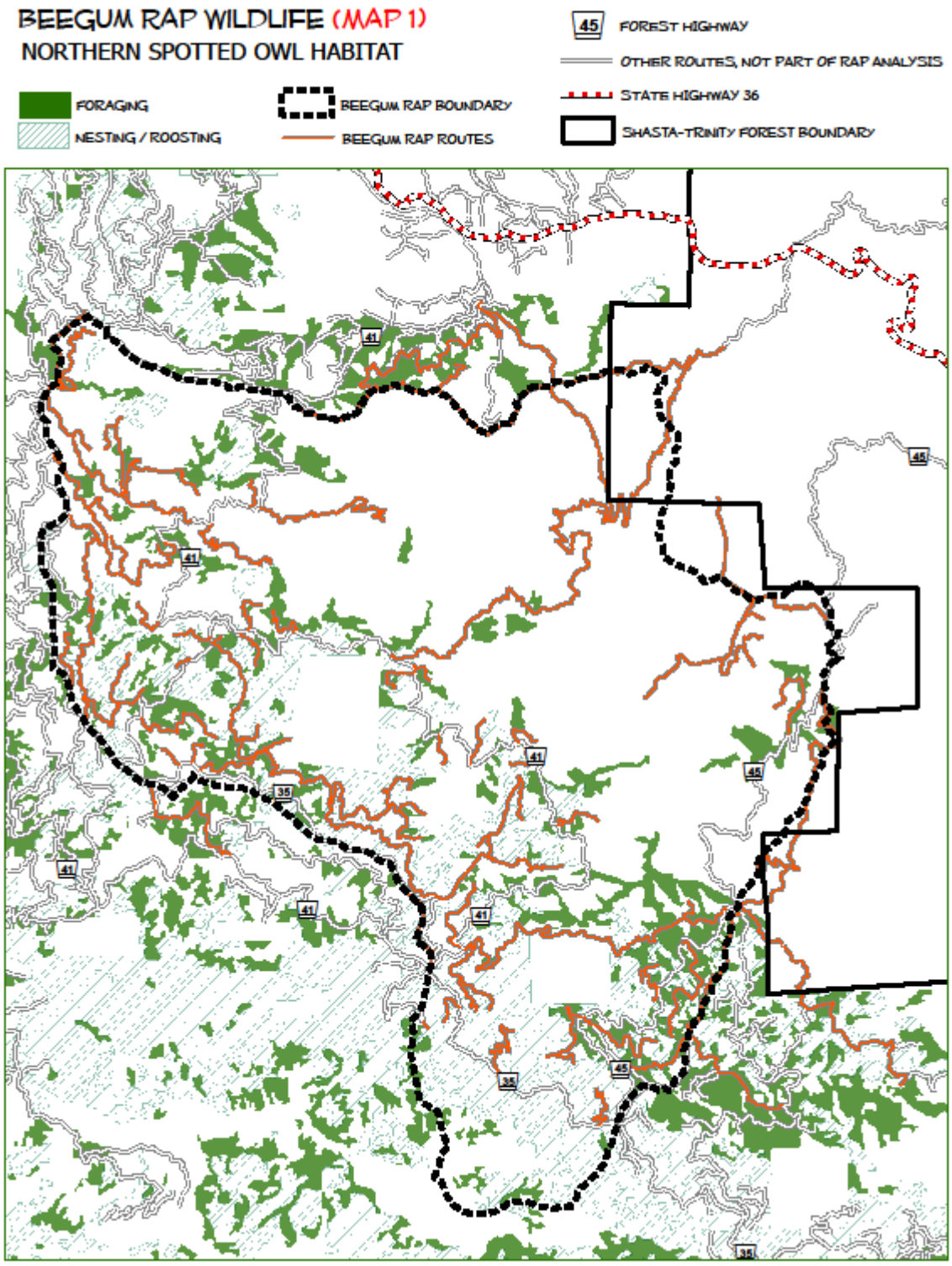
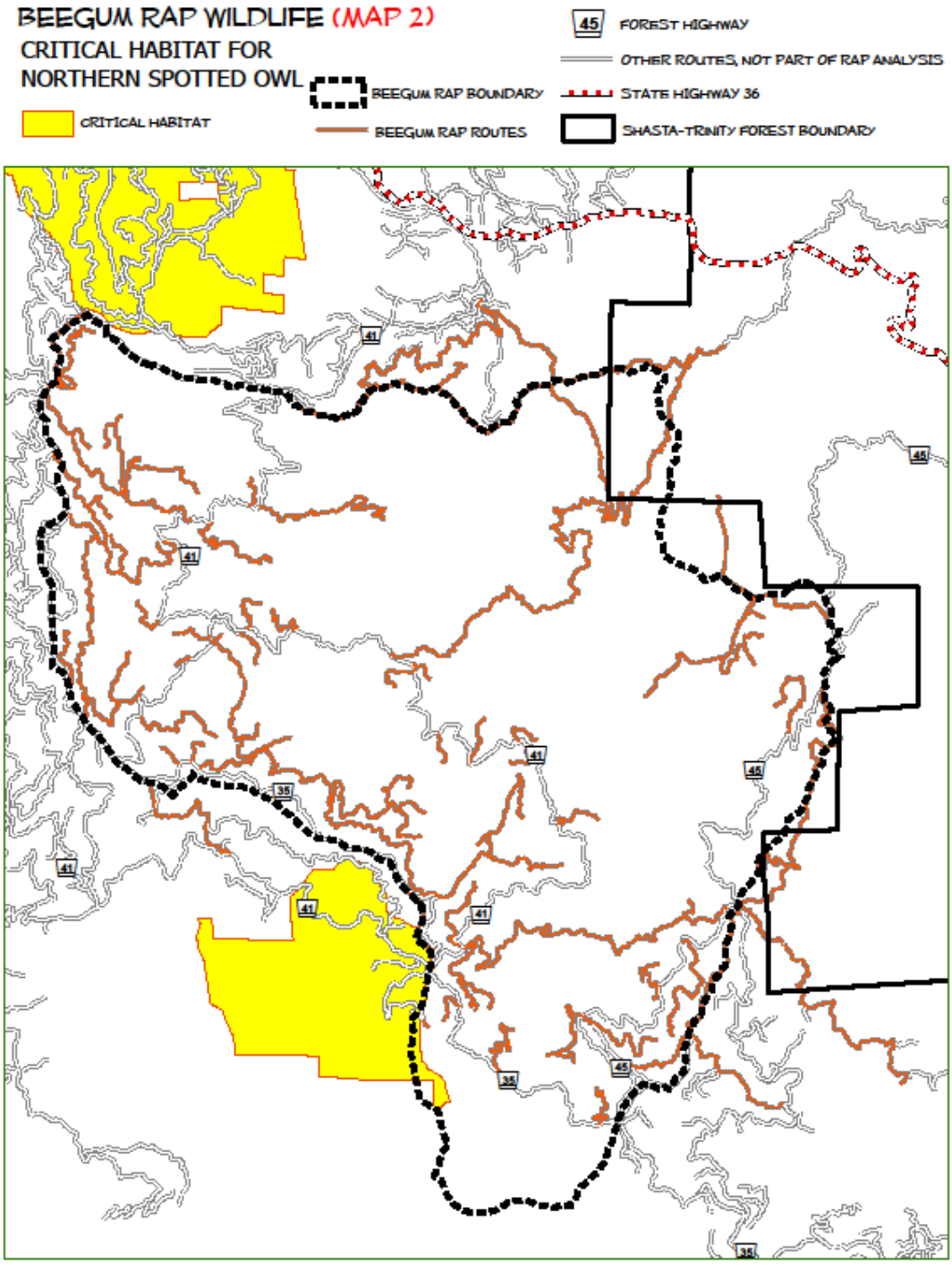
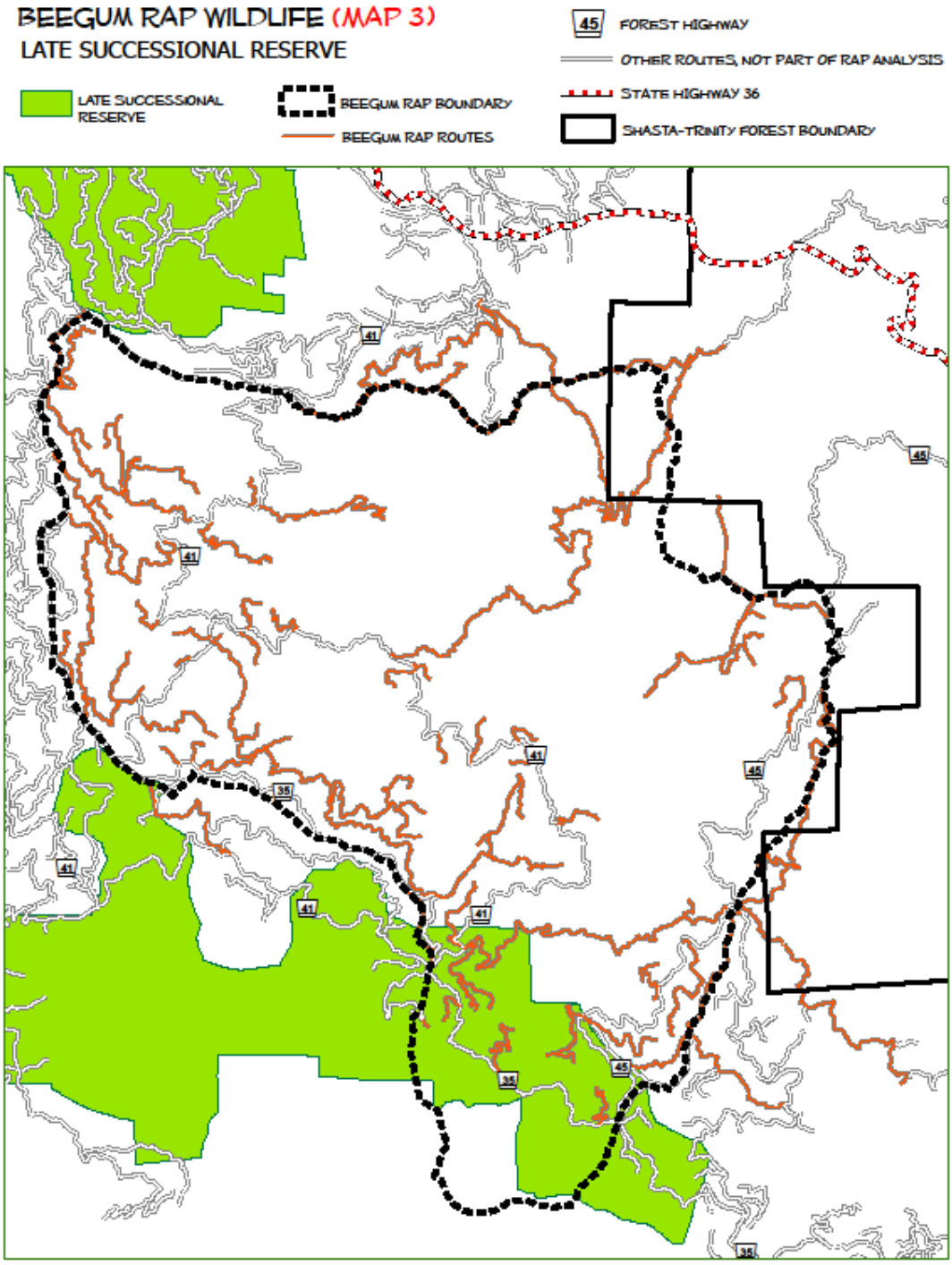

BEEGUM RAP WILDLIFE (MAP 1)
NORTHERN SPOTTED OWL HABITAT
FORAGING
NESTING / ROOSTING
BEEGUM RAP BOUNDARY
BEEGUM RAP ROUTES
45 FOREST HIGHWAY
OTHER ROUTES, NOT PART OF RAP ANALYSIS
STATE HIGHWAY 36
SHASTA-TRINITY FOREST BOUNDARY


BEEGUM RAP WILDLIFE (MAP 2)
CRITICAL HABITAT FOR
NORTHERN SPOTTED OWL
CRITICAL HABITAT
BEEGUM RAP BOUNDARY
BEEGUM RAP ROUTES
45
FOREST HIGHWAY
OTHER ROUTES, NOT PART OF RAP ANALYSIS
STATE HIGHWAY 36
SHASTA-TRINITY FOREST BOUNDARY


BEEGUM RAP WILDLIFE (MAP 3)
LATE SUCCESSIONAL RESERVE
LATE SUCCESSIONAL RESERVE
BEEGUM RAP BOUNDARY
BEEGUM RAP ROUTES
45
FOREST HIGHWAY
OTHER ROUTES, NOT PART OF RAP ANALYSIS
STATE HIGHWAY 36
SHASTA-TRINITY FOREST BOUNDARY

Botany – Susan Erwin

EF (2): To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?

The Beegum RAP area is within the Rattlesnake Creek Terrane, a geologic and geographic area rich in serpentine soils, serpentine plant communities, and several serpentine endemic Forest Service Sensitive plant species. The sparse and broadscale nature of serpentine outcrops encouraged extensive mining and road construction in the 1970's and 80's, leading to the high number of roads analyzed in this process. Despite a high number of roads open to motorized traffic, there are no documented populations of noxious weeds in the GIS database. Noxious weeds are present along these roads, but most areas are far enough removed from the main transportation routes through the Forest and serpentine soils discourage growth of most species that are not adapted to the extreme soil chemistry

Historical visits have shown that the greatest concentrations of weeds, primarily yellow starthistle and sweet clovers, are found outside of the RAP analysis boundary on the northeast side in the area between Pattymocus Butte and Highway 36. The area is occupied by extensive foothill chaparral plant communities that encourage noxious weed introduction and spread because of their low elevation and relatively warm temperatures in the winter. Relatively low visitation has played a part in keeping weed-occupied areas from becoming more extensive than they are. Forest Road 29N45, which enters the Beegum RAP area at Pattymocus Butte, is acting as a vector of noxious weed introduction into the inner Beegum RAP area. Yellow starthistle, annual grasses, and other invasive weed species are abundant along most parts of this road, but in highest densities in the open chaparral communities before you drop down into lower parts of the watershed.

Increased OHV use and establishment of user-created roads has facilitated noxious weed introduction and is expected to get worse into the future, even after designation of Level 1 and 2 travel routes under current travel management plan analysis. OHV's introduce and spread weeds by catching them as they pass through existing populations off-road and by coming in on devices and trailers from outside areas. There are 9 non-system "U" routes within the analysis area, many of these are along open, serpentine ridgetops. Soil disturbance from tire passes creates optimum conditions of weed introduction and establishment. Once established, weeds easily spread through seed dispersal.

Serpentine communities are fairly resilient to noxious weed introduction and spread because of their unique soil chemistry for any species, but with continued and regular exposure they are ultimately vulnerable to weed establishment. There are several FS Sensitive species that are endemic to serpentine soils in this area, many of which are found nowhere else in the world. OHV users often find ridgetop serpentine outcrops attractive and serpentine openings have experienced a somewhat disproportionate amount of use. Off-road vehicles are introducing weeds to serpentine outcrops at an increasing frequency and are putting greater numbers of serpentine endemic Sensitive plant populations at risk for degradation. Although elimination of newly created non-system roads is recommended under this analysis for management of botanical species, two external circumstances are recognized. Illegal travel route creation is anticipated to continue into the future after a designated trail system is established because of inadequate funding for trail use enforcement and the difficulty in restricting travel in gently-sloped open areas where no physical barriers exist. Improvement and management of roads intersecting serpentine outcrops to discourage movement off of established roads may be the most effective way to reduce noxious weed impacts to serpentine soils and Sensitive plant populations, although closure and/or decommissioning may be effective as well.

TW (4): How does the road system directly affect unique communities or special features in the area?

Unique communities and special features within the Beegum RAP analysis area include serpentine habitats within the Rattlesnake Creek Terrane and Forest Service Sensitive plant species.

30% of the analysis area is underlain by serpentine soils, varying in the component of ultramafic mineralogy in any individual outcrop. Higher quality serpentine soils provide habitat for a suite of unique plant species that are adapted to tolerate high concentrations of heavy metals and low nutrient concentrations that define serpentine soils. The Shasta-Trinity National Forest supports conservation of these habitats as evidenced by the *Multi-Species Conservation Strategy for Serpentine Endemics of the Rattlesnake Creek Terrane* currently under development. Serpentine habitats do not heal quickly from even light soil disturbance and it is not uncommon to see tire tracks that have not disappeared after 20-30 years. The quality of serpentine soils as indicated by the amount of ultramafic minerology in a particular mapped soil unit is strongly and indirectly related to the ability of that soil to recover and be productive after a disturbance event.

The southernmost tip of the Rattlesnake Creek Terrane is centered directly within the Beegum RAP area and includes some of the highest concentrations of serpentine soils in the 375,000 acre geologic span. 3% of the 40,730 RAP analysis area (Middle Fork Beegum Creek and South Fork Beegum Creek subwatersheds) is occupied by current or historic FS Sensitive plant populations in 47 separate populations. Thirty of the 93 FS System and Non-System roads in the analysis area intersect with or come within 1/8 mile of a FS Sensitive plant population, with some populations being intersected by more than 1 road; those roads are identified in the Benefit Risk Analysis Table. Most roads affect less than 15% of the spatial area of any one population and do not effectively impact the viability or reproductive potential of an individual population. There are few concerns about impacts to serpentine habitats or endemic Sensitive plant populations when vehicles remain on established roadways, except where vehicles pull off or park next to those roadways.

Extensive timber harvest and mining related road construction in the 70's and 80's that established the current road network/density impacted the quality of serpentine habitats and many FS Sensitive plant populations with which they intersected. Most of these areas have been unaffected outside of the road bed, but recently there has been increasing frequency of travel off of roadbeds by OHVs because of increased popularity and growing perception of lack of regulations restricting off-road travel. Some off-road use will decrease once the travel management plan for Level 1 and 2 roads is signed, but full compliance with the final route designation is not expected until full staffing for enforcement of regulations can occur.

Two FS System and 1 Non-System road are recommended for closure or decommissioning. FS 29N39 and U28N10K both lie entirely within large areas of high quality serpentine soils and intersect multiple FS Sensitive plant populations. Both are redundant in that better parallel existing travel routes are in place that access local geographic areas of interest. These roads facilitate unregulated off-road travel into high quality serpentine habitat and Sensitive plant populations that has potential to cause degradation to both.

FS 28N29A does not intersect serpentine habitats or FS Sensitive plant populations, but it is only 150 long and seems not to provide access to any significant geographic landmark or management use. Closure or decommissioning would remove the road from the travel inventory and would contribute to the Shasta-Trinity National Forest goal to reduce overall road density.

Fuels – Jim Gonzalez

Fire and Fuels Report - Protection (PT)

PT (1): How does the road system affect fuels management?

This question pertains to the Cohesive Strategy, fuels management priorities:

- Protection of communities at risk (CAR)
- Protection of Municipal watersheds

Roads provide access for hazardous fuel reduction activities that protect forest resources and are used for personnel and equipment access to various prescribed (RX) fire sites within the proposed project area. They are also used as fire control lines, safety zones, and escape routes. Also considered were roads located within a municipal watershed. The definition of municipal watershed for this report is any watershed on National Forest Land that contributes water to a downstream public water supply system.

PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?

Roads that are located along or provide access to a ridge top, provide access to large areas and private property are important for suppressing wildfire. Roads located in high fire risk areas, or in areas that have potential for establishing future fire lines are also given more consideration. A small portion of the project area falls within the Cal Fire Direct Protection Area, therefore road access to private property and structures is given a higher ranking, as well as, roads that access private industrial timberlands. The same is true for roads that are located within the Forest Service Direct Protection Area.

A future Fuel Management Zone (FMZ) is proposed within the project area so roads that access this FMZ should be maintained, and or upgraded to allow for future fire suppression. If road access to the FMZ is not maintained for large equipment to pass, such as a fire engine or water tender, the benefits would be limited.

PT (3): How does the road system affect risk to firefighters and to public safety?

Roads are ranked based on whether or not they access large areas or structures, and if the road is accessible for large fire equipment. Fire engines and water tenders on the SFMU are not four wheel drive vehicles, although, firefighters can use other vehicles but will not have water pumping capabilities. Some roads access present and future fuels reduction projects, which have the objective of reducing fuels to reduce fire behavior to increase firefighter and public safety. These roads should be maintained to increase firefighting effectiveness. The level that fire protection agencies can provide for public safety is directly dependent upon the ability to access a wildfire in a timely manner, and suppressing fires when they are small reduces the amount of exposure to firefighters and the public.

Commodity Production/Timber Management – Keli McElroy

TM (2): How does the road system provide for vegetation management objectives?

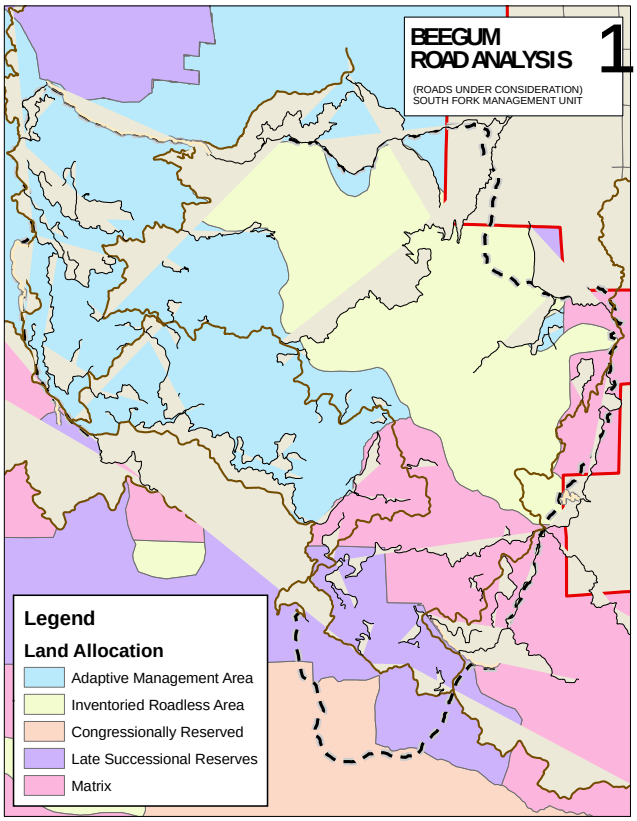
Historically, vegetation management objectives within the Beegum RAP analysis area have been exclusive to timber management activities; such as commercial and pre-commercial timber harvest and plantation maintenance. While future foreseeable actions within the analysis area will continue to emphasize timber harvest activities, vegetation management objectives will also include protecting forest resources and private property from potential damage due to wildfire.

The existing road system provides adequate access for meeting vegetation management objectives within the RAP analysis area.

Roads are ranked based their ability to access the suitable land base within the project area. The more acres that can be accessed by a single road, the greater the benefit that road possesses in terms of meeting vegetation management objectives. Much of the suitable land base must be managed using cable logging systems or via helicopter. Roads through steeper sloped areas (ie. greater than 35% slope) have a higher value and often result in a higher density of roads due to logging feasibility issues (as evidenced on the west/south side of the analysis area.

Roads in Inventoried Roadless Areas (IRAs) have been given a low ranking low at this time, as current direction suggests they will hold minimal benefit toward reaching timber management objectives for quite some time.

Figure A. Land Allocations within the Beegum RAP Analysis Area.



TM (3): How does the road system affect access to timber stands needing silvicultural treatment?

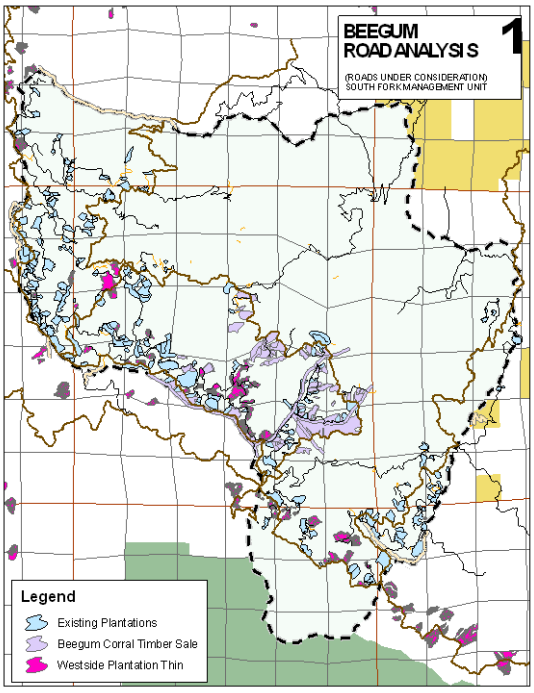
Currently, there are two active timber sales, *Beegum Corral* and *Texas Spider*, within the Beegum RAP analysis area, as well as obligated Knutson-Vandenburg (K-V) funded management actions from prior timber harvest activities. Access is needed roughly every 20 years for planned timber harvest activities throughout the Beegum RAP analysis area. In addition, more frequent access is needed for activities in existing plantations, timber stand analysis, and for current and future foreseeable actions (see map below).

The existing road system provides adequate access to timber stands needing silvicultural treatment, as well as to areas where current and future foreseeable vegetation management activities are planned.

Roads that provide access to current or future foreseeable actions, as well as roads that access existing plantations were given a higher ranking. The more often a road is required for management and the number of previously managed stands (ie. plantations) the road access, the higher the benefit of that road.

Special circumstances often affected the rating system and out-ranked TM-2 when arriving at number for Commodity Production. Where a road accesses *Beegum Corral Timber Sale* treatment units, the road was rated "5" due to the government's legal responsibility under the timber sale contract to allow access in order for the purchaser to accomplish their responsibilities. Activities such as obligated K-V work (including reforestation of harvest units associated with *Beegum Corral*, *Beegum Rock* and *Beegum-Regan* timber sales) also ranked high, and over-ruled TM-2. Roads accessing plantations analyzed under *Westside Plantation Project EA* (aka *Plantation Thin*) were given a higher ranking than plantations not included under the EA due to the greater likelihood of implementation within the next five years.

Figure B. Past, Present and Foreseeable Future Management Actions within the Beegum RAP Project Analysis Area



SP (1): How does the road system affect access for collecting special forest products?

For this analysis, special forest products can be described as products or natural resources that are not traditional timber and fiber products. Examples include Christmas trees, mushrooms, transplants (trees, shrubs or herbaceous plants), and fuelwood.

Roads with a maintenance level of 2 or higher were given higher consideration than maintenance level 1 roads due to accessibility issues for the public. In addition, roads that provide access to areas where fuelwood gathering opportunities are the highest (whether from management activities or natural events) were given greater consideration.

The existing road system provides adequate access for the collection of special forest products within the Beegum RAP analysis area.

Road-Related Recreation & Special Use – Brad Rust

RR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of roaded recreation opportunities?

Decommissioning of some classified roads and undetermined inventoried roads and trails could result in a reduction in the quantity, quality and type of roaded/undeveloped recreation opportunity. Within the boundaries of the area, numerous level 1, 2, 3 roads currently receive use by users recreating in the general forested area. (Ref: Questions RR4). Additional unclassified trails located in the Off Highway Vehicle, (OHV) Route Designation Route Inventory, (2005-07), indicate some user OHV activity is occurring on non-system trails, (<50 inches) and non-system roads, (> 50 inches) within the boundaries of the area. (Overall Risk Rating = 3)

RR (4): Who participates in roaded recreation in the area affected by road constructing, changes in road maintenance, or road maintenance, or road decommissioning?

The users whose recreational opportunity could be negatively affected by a proposed management decision to decommission some roads within the boundaries of the Beegum RAP could include: Local area residents and other users use the general forest roads for gathering forest products; (fuelwood, Christmas trees); hunting game and fowl; fishing; water sports; Mountain biking; off highway vehicle use; driving for pleasure; wildlife viewing; and in search of solitude. (Overall Risk Rating = 2).

MINING CLAIM ACCESS – no current active mining claims. Special use permits – only 1 (Seeliger Ranch) and is not affected by road work on 28N07.

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Roads with a maintenance level of 2 or higher were given higher consideration than maintenance level 1 roads due to accessibility issues for the public. In addition, roads that provide access to areas where fuelwood gathering opportunities are the highest (whether from management activities or natural events) were given greater consideration. The existing road system provides adequate access for the collection of special forest products within the Beegum RAP analysis area.

Naturally Occurring Asbestos – Brad Rust

PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility and human health concerns?

Background:
On May 1, 2008, the Bureau of Land Management (BLM) issued a closure order to all forms of entry and public use for approximately 31,000 acres of public lands in the Clear Creek Management Area (CCMA). This decision was made in response to a human health risk assessment conducted by the Environmental Protection Agency (EPA) which showed that there were public health and safety risks posed by the exposure to naturally occurring asbestos (NOA) that is present in the CCMA. "Naturally Occurring Asbestos" is the term applied to the natural geologic occurrence of any of the types of asbestos, and has been found to be present in the majority of counties in California. Asbestos form minerals are commonly found in serpentine and other ultramafic rock formations and have been identified in 50 out of 58 counties in the State of California and on NFS lands.

Many of the areas with serpentine and ultramafic rock formations have Forest Service trails and roads built on them as well as Forest Service recreation facilities like campgrounds. Forest Service employees and the public traverse these areas frequently and agency employees routinely engage in ground disturbing activities (road and trail maintenance, wildland fire response, etc.) which has the potential for creating an asbestos exposure hazard. NOA that is not disturbed or deteriorated poses little, if any, health risk. However, when asbestos containing rocks are crushed or broken through weathering and ground disturbing activities such as vehicle travel on and maintenance of roads located in NOA areas, asbestos-containing dust can be generated. Once in the air, asbestos fibers can be inhaled and can pose a potential health risk to agency employees and the public.

The CCMA decision and other recent public health studies by entities such as the Centers for Disease Control (CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), and the State of California has provided new information about the potential human health risks posed by NOA and have heightened public and regional awareness to the potential health threats. Since the CCMA decision, the Regional Office has received requests from the field to provide regional direction and guidance on the matter as it relates to the day to day management of the national forests.

Any land management decisions regarding NOA must be based on sound data and analysis. According to EPA, the scientific assessment and identification of actual public health risks associated with NOA is a complex and time intensive process. Until such studies are performed, the Region will not have definitive information regarding actual employee and public health risks posed by NOA on NFS lands. Therefore, no decisions are being made or direction issued at this point in time to restrict or alter public access to and/or recreational use of the national forests.

Based on discussions with EPA and state agencies, the information presently available regarding the presence of NOA on NFS lands and the public health studies that have been conducted to date, make it clear that forests need to implement measures to make the public aware and protect our employees from the potential hazards NOA poses.

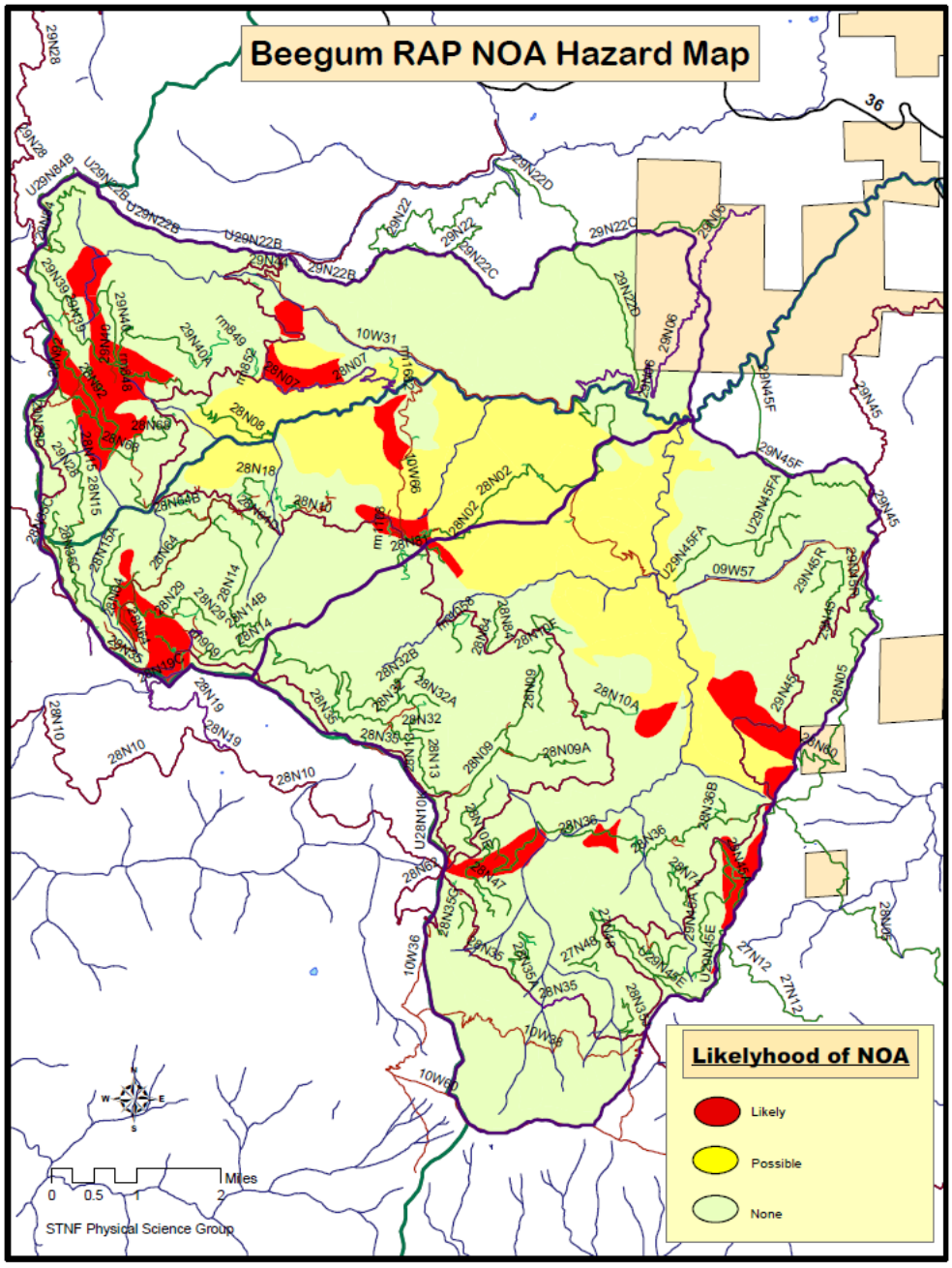
Roads Affected by NOA:
Using the Beegum RAP NOA Hazard Map, ratings were assigned to roads intersecting NOA areas of the likelihood of encountering NOA.

Beegum RAP Roads Affected by NOA						
Road	**ML**	**Area**	**Major Soil**	**Surface Type**	**NOA Likelyhood**	**Rating**
27N12	2	South Beegum	Henneke	native	possible	3
28N10	3	Middle Beegum	Dubakella	gravel	possible	3
28N36	3	South Beegum	Henneke	gravel	possible	3
28N64	3	Middle Beegum	Dubekella	gravel	possible	3
29N45	3	South Beegum	Dubekella	gravel	likely	4
28N02	2	Middle Beegum	Henneke	native	possible	5
28N05	2	South Beegum	Dubekella	native	likely	5
28N07	2	North Beegum	Dubekella	native	likely	5
28N08	1	Middle Beegum	Henneke	native	possible	4
28N10E	2	South Beegum	Dubekella	native	possible	3
28N10P	1	South Beegum	Dubekella	native	likely	5
28N14	2	Middle Beegum	Dunsmuir	native	possible	2
28N15	2	Middle Beegum	Dubekella	native	possible	3
28N17	2	Middle Beegum	Dubekella	native	possible	3
28N18	2	Middle Beegum	Dubekella	native	possible	3
28N19C	1	Middle Beegum	Dubekella	native	likely	5
28N29	2	Middle Beegum	Dubekella	native	likely	5
28N35F	2	Middle Beegum	Dubekella	native	likely	5
28N47	2	South Beegum	Dubekella	native	likely	4
28N60	2	South Beegum	Dubekella	native	likely	5
28N64B	2	Middle Beegum	Dunsmuir	native	possible	2
28N64D	2	Middle Beegum	Dunsmuir	native	possible	2
28N68	2	Middle Beegum	Dubekella	native	likely	5
28N92	2	Middle Beegum	Dubekella	native	likely	5
28N92A	3	Middle Beegum	Dubekella	native	likely	5
29N06	2	Beegum Gorge	Henneke	native	possible	3
29N39	2	Middle Beegum	Dubekella	native	likely	4
29N39A	1	Middle Beegum	Dubekella	native	likely	4
29N40	1	North Beegum	Dubekella	native	possible	3
29N45A	2	South Beegum	Dubekella	native	likely	5
29N45B	2	South Beegum	Dubekella	native	likely	4
29N84	2	North Beegum	Dunsmuir	native	possible	2

Regional Policy on Health Concerns for NOA:

The intent of this information is to make the public aware of the potential or actual presence of NOA on NFS lands and provide them with sufficient information as to the potential health risks as they are presently known so that they can make informed decisions.

Until further scientific studies are conducted that delineate actual public health threats, the Region will view NOA as another form of geologic hazard. As this issue is not limited to only Forest Service lands, the Region will be working with other federal and state public health and land management agencies to develop a coordinated strategy for assessing and mitigating the potential health concerns for the recreating public.


Beegum RAP NOA Hazard Map
Likelyhood of NOA
Likely
Possible
None
Miles
0 0.5 1 2
STNF Physical Science Group